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SCRUTINISING POLARISATION

PATTERNS AND CONSEQUENCES OF OCCUPATIONAL TRANSFORMATION IN THE SWEDISH LABOUR MARKET

Edited by
Tomas Berglund and Ylva Ulfsdotter Eriksson

Scrutinising Polarisation

This book scrutinises polarisation in Sweden, identifying patterns and variations in labour market transformation and exploring the consequences in terms of jobs, income, prestige, unionization and employment security, as well as the effects on different social groups. Through a series of empirical studies, it sheds light on changes in the occupational structure and the ways in which these changes interact with other societal trends, such as increased temporary employment, rising migration and decreased unionization, whilst also exploring changes in the evaluation of occupations and attitudes towards trade unions. Drawing on distinctly sociological perspectives, it shows how transformations in society and the labour market have affected conditions for individuals and considers whether these changes reinforce existing inequalities occasioned by polarisation or create new ones. *Scrutinising Polarisation* considers whether and how the Swedish labour market has polarized – and, if so, what this means for individual employees and labour organizations. It will therefore appeal to scholars with interests in the sociology of work and professions, social inequalities and labour market transformations.

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During the project, one of our colleagues sadly passed away, our loved friend Tommy Isidorsson. Tommy was a historian and a leader in developing work-life studies in Sweden. He conducted several important studies together with Kristina Håkansson about the flexibilisation of Swedish working life. Most importantly, Tommy was a ray of sunshine at the department, always fun to meet and discuss things with. This book is dedicated to his memory.

Tomas and Ylva
Göteborg, October 6, 2023

1 Scrutinising Polarisation
An introduction

Tomas Berglund and Ylva Ulfsdotter Eriksson

Introduction

Labour markets in advanced industrial countries are changing and advances in digital technology have been identified as driving forces that contribute to the transformation of the job structure (Acemoglu and Autor 2011; Brynjolfsson and McAfee 2014). Technological innovations and increased digitalisation have rationalised the production of goods and services, which has reduced the need for human labour in certain parts of the labour market and increased demand in others. Employers' request for human labour is expected to be strong and even increase in non-routine jobs with high qualification requirements, as well as in non-routine jobs that demand low qualifications, while computers, robots and machines are anticipated to replace humans in routine jobs (Autor *et al*. 2003; Goos and Manning 2007).

Transformations of labour markets have been described in terms of *polarisation*, by both policy institutes (e.g., Breemersch *et al*. 2017) and researchers (Autor *et al*. 2006; Goos and Manning 2007) to emphasise the U-shaped patterns of increased employment in both low-skilled/low-wage and high-skilled/high-wage jobs and a reduction in the middle layer. Although Breemersch *et al*. (2017: 7) stressed that 'there is no single factor or common cause', and that there are differences in labour market transformation in Western societies, they also emphasised that polarisation 'is a widespread phenomenon in advanced countries'.

Labour market polarisation has been a subject of debate in the literature (Fernández-Macías 2012; Oesch and Piccitto 2019), and inconclusive findings make Sweden an especially interesting case to explore further. Firstly, the Swedish labour market has previously been described as 'the high road' to full employment, being able to prevent job growth in the bottom range of the wage distribution (Regini 2000; Gallie 2007). Secondly, Swedish research on polarisation points in different directions: some studies find tendencies of polarisation (Åberg 2015; Adermon and Gustavsson 2015), some show that upgrading is still the main road to change (Oesch and Piccitto 2019; Tåhlin 2019), and still others have discovered gendered patterns of both upgrading (for women) and polarisation (for men) (Ulfsdotter Eriksson *et al*. 2022).

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This book contributes to the national and international discussion on labour market transformation and polarisation, by exploring the developments in the Swedish labour market in a nuanced and in-depth way. The book covers the evolution of the occupational structure since the 1990s and the years just before the COVID-19 pandemic broke out in 2020. Scholars often derive the labour market changes of recent decades to the intrusion of *digitalisation* in more or less every corner of society (Brynjolfsson and McAfee 2014). This umbrella concept usually covers computerisation, automatisation, robotisation, and advances in information and communication technologies (ICT). However, as we will show in this book, digitalisation is not the sole explanation for the profound changes that the Swedish labour market has undergone since the 1990s: new management ideas and flexible ways to organise work, changes in the industrial relation system, increased migration, as well as political choices of public sector privatisations have all impacted on the occupational structure (cf. Larsson *et al*. 2012).

This book aims to scrutinise polarisation in Sweden by identifying patterns and variations of labour market transformation. A variety of empirical studies contribute with knowledge on what kind of jobs are increasing and decreasing in the labour market, and how changes interact with other societal trends, such as increased temporary employment, rising migration and decreased unionisation, as well as changes in attitudes and perceptions of the role of trade unions and symbolic evaluations of occupations.

Through distinctly sociological perspectives, this book addresses questions such as:

- How has the occupational structure changed since the 1990s? Is it polarising, or is the upgrading tendency towards higher-quality jobs that was significant for previous decades still at work?
- How can we explain changes in the Swedish occupational structure? Is technological development the single most important factor, or are other explanations similarly important, such as the reconstructions of the large Swedish public employment sector?
- Which social categories are affected by a changing occupational structure, and what does that mean for Swedish inequality patterns?
- What consequences have been identified concerning work environments, incomes and status hierarchies?
- What implications does a restructuring of the labour market have for social parties' – particularly unions' – power resources, and the so-called Swedish labour market model?
- Is Sweden facing polarisation? If so, what kinds of polarisation and what social categories have been affected?

Transformation of Labour Markets

Since the Industrial Revolution in the nineteenth century, transformations of labour markets have been of central interest to social scientists. The first

Industrial Revolution introduced mechanised technology and new power and energy sources on a grand scale, transforming the economy in the direction of mass production. New jobs and occupations were created in growing towns and industrial centres, while a successively mechanised agricultural sector, in which the majority of people had been occupied for centuries, offered fewer possibilities for employment and livelihood. Moreover, the introduction of mechanised industrial production led, in its early stages, to deskilling when older handicraft methods of skilled workers became obsolete through the introduction of machines and scientific management (Braverman 1974; Acemoglu 2002).

In the twentieth century, the industrial modernity organised after a Fordist production model, paving the way for a levelled-out middle-class society, characterised by 'egalitarian distribution of wealth' and 'continuous growth in prosperity' (Reckwitz 2021: 39). In the industrialised society, the middle segment of the class structure, which consisted of skilled and low-level workers, increased in numbers and formal education was not a necessity to pursue a prosperous life. The cultural values in the middle class revolved around work ethics and goals were centred on improvement of status and 'standard of living'. Moreover, it was a patriarchal society, with men as breadwinners and women as unpaid caretakers at home.

However, in the second half of the twentieth century, proclamations were made about the fading of the industrial society. It was noticed that jobs in manufacturing were not expanding at the same rate as before, while jobs in the service sector were on the rise. Accordingly, it was believed that industrial society was being successively replaced by the post-industrial society (Bell 1973). While Bell did see early signs of the significance of digital/information technology and rising requirements of abstract knowledge, other factors were also stressed. Overall, society had become more complex, in the need to coordinate multiplied social interactions. Bell (1973) predicted increased needs for planning and social forecasting to meet people's ever-increasing expectations, making the state, together with large corporations, key actors in post-industrial society. This would increase the need for occupational groups other than technicians and industrial workers. Professionals in welfare and human services, as well as lower-skilled welfare workers, would increase and constitute new central classes.

After the neoliberal revolution in the 1970s and 1980s, visions of state-governed societies came to an end. Instead, releasing market forces by the deregulation and privatisation of public assets became top priorities to invigorate stagnated economies. The post-industrial late modernity has increasingly been characterised as a polarised society. According to Reckwitz (2021), this polarisation is multidimensional, cutting into economic, cultural and spatial dimensions. Transformations of labour are the main driver and have led to strong demand for 'knowledge workers' and an expansion of higher education. Thus, the winners are those who are tertiary educated in high-qualified jobs, such as researchers, business developers, and engineers, living in urban milieus,

nurturing cultural interests, and engaging in self-actualisation. In parallel, the academisation of society has devaluated non-academic knowledge found in many of those occupations held by the old middle class (that is, skilled workers in crafts jobs). The service economy also consists of low-skilled occupations, like cleaners, drivers and caretakers, often in more precarious employment. Thus, Reckwitz (2021) described today's society as consisting of three classes (besides a small stratum of the super-rich): the traditional 'old' middle class from the industrial society, the new middle class, and a new precarious underclass.

However, the post-industrial changes of recent decades have taken place in parallel with the digital technological revolution in computers, ICT, robotics and the recent developments in Artificial Intelligence (Brynjolfsson and McAfee 2014). Similar to the Industrial Revolution, digitalisation in the fourth revolution is believed to have pervasive effects on the labour market, as well as on society at large. On one hand, this revolution, as with previous technological changes, seems to spur productivity in industrial production, decreasing the demand for lower-skilled manual workers. On the other hand, this revolution has also affected the white-collar occupations typical in post-industrial society. Thus, the Digital Revolution seems to have the potential to fundamentally restructure the labour market as we know it.

Four Factors for Transformation

While the effects of technology and technological development are strong driving forces of historical evolution, the point of departure for this book is that it does not rely on a simple model of technological determinism. Instead, several factors need to be considered to explain the direction of labour market changes and the implications for the wider society. Moreover, to understand a specific case, such as the Swedish, more contingent factors related to the Swedish historical context need to be taken into account. Below, we discuss four general factors that are related to the changes in the Swedish occupational structure, and Chapter 2 presents an overview of some additional important historical developments of the relevance of the transformations of the Swedish labour market.

Technological Development

The starting point in much of the debate about occupational change is technology. Generally, technology, and particularly digital technological development, affects the work tasks conducted by workers in the production process (Acemoglu and Autor 2011). At least three main effects are expected. Firstly, technology can replace work tasks; that is, machines take over tasks that have previously been conducted manually, cognitively (such as calculations) or in social interactions (for example, a cashier at a bank). Secondly, technology can augment the productivity of work tasks; that is, conducting them more quickly

and with higher quality, and even release creativity (as an example, think of the possibilities that computer-aided design gives architects in testing solutions in the construction and design of a building). Thirdly, technology can induce workers to learn new work tasks and expand their skills while making other skills unnecessary.

If we accept the simple definition of an occupation as a 'bundle of work tasks' (cf. Taylor 1968), implementing digital technology into production should affect the occupational structure. According to research, occupations that mainly consist of repetitive work tasks, such as assembly line workers, are more easily substituted by programmable machines (Autor *et al*. 2003; Goos and Manning 2007). On the other hand, occupations that require more complex problem-solving tasks are not so easily replaceable and often benefit from digital technology. For instance, it is often technicians and researchers that invent new rational work processes.

According to the recently dominant theory on the effects of technological development, *skilled-biased technological change* (SBTC), occupational change moves in the direction of *upgrading*, and occupations that require high education and are well-paid are increasing in numbers, while low-skilled and low-paid jobs are being replaced by technology and therefore decreasing (Katz and Murphy 1992). The implication of such trends is that education is the prime factor for labour market success, and the main goal of governmental policies is to keep the output of the educational system in pace with technological change. If that is not achieved, structural unemployment – that is, people whose educational achievement is too low to find employment – is the main threat to the economy.

Recently, SBTC started getting competition from a perspective that placed more emphasis on the specific significance of digital technological change. The theory of *routine-biased technological change* (RBTC) also emphasises the significance of education and how digital technology augments the productivity of highly skilled workers with complex work tasks (Autor *et al*. 2003; Goos and Manning 2007). These theories differ regarding the substitution effects from digitalisation: which jobs are replaceable with programmable devices? According to RBTC, digitalisation means that every job with standardised and repeatable work is at risk of replacement, which means that not only manual jobs but also jobs with cognitive content, such as many clerical work tasks, are exposed to substitution. On the other hand, there are also many low-skilled manual jobs, such as waitresses and cleaners, that are not standardised, or that include key social interactive elements, which makes them less easy to replace with technical devices.

Thus, RBTC predicts that digitalisation will replace standardised jobs with manual or cognitive work tasks. These occupations usually require some skills and education and are often found in the middle of the occupational wage structure (Goos and Manning 2007). The outcomes for non-standardised jobs differ depending on whether they are high- or low-skilled. The highly skilled non-standardised jobs are mainly augmented by digital technology, reinforcing

their productivity, and overall increasing the demand for well-educated workers that can take on those jobs and occupations. Non-standardised low-skilled occupations are only marginally affected by the new technology, leaving them mainly untouched by technological replacement.

Therefore, the expected overall effect of the accelerating introduction of digital devices in production in recent decades is that the upgrading of the occupational structure will give way to polarisation. This implies that employment in occupations requiring the highest skill level (which are presumably the highest paid), together with the lowest-skilled and lowest-paid occupations, are increasing, while employment in middle-level occupations instead is shrinking. Over time, and particularly during the developments of recent decades, the occupational structure should move in the direction of a U-shape; that is, polarisation.

From a sociological perspective, this mainly economist-driven perspective is interesting and challenging. It gives primacy to technology, while not considering other factors such as institutions, the effect of organised labour, power relations and politics. In one sense, it takes us back to a debate in the 1960s and 1970s, when the effects of technology in the industrial society either were viewed very positively, leading to job enrichment and upgrading (Blauner 1964), or that the techno-economic system impoverished job content, deskilled workers, and moved the power to the evolving cadres of technicians (Braverman 1974). The polarisation perspective, mainly advocated by economists, seems to have given new fuel to the criticism of capitalist production systems, and their side effects of increasing inequalities in society.

Globalisation

A suggested alternative explanation for the polarisation tendencies in the occupational structure is *globalisation*. Since the 1970s, global commerce has expanded rapidly, including not only the trade of goods but also the mobility of jobs and services. The jobs that are most easily replaceable by technology are also the easiest to move abroad (Oldenski 2014). It is harder to move cognitive advanced or managerial work tasks to reap the fruits of lowering labour costs, as those jobs require language proficiency and other contextual social skills. Moreover, domestic services, like hairdressing or restaurant work, are essentially not possible to offshore. Generally, globalisation – or, more precisely, moving jobs to low-cost countries – may be an alternative strategy to investing in technology. This has mainly hit manual employment in production. The introduction of ICT has also made it possible to perform more impersonal service work tasks abroad (Blinder 2006). Therefore, the polarisation of labour markets may be reinforced by globalisation.

Investments in Swedish companies abroad have largely increased since the 1980s. The number employed in Swedish multinational companies (MNC) increased by about 70 per cent between 1990 and 2020 (Ekonomifakta 2023). However, the increase is only due to new employment abroad, while the

number employed in Sweden has stagnated. Recent research shows that mainly routine manual work is relocated by Swedish MNCs, while non-routine high-skilled jobs in Sweden are increasing (Eliasson *et al*. 2022). Moreover, the increases in non-routine high-skilled jobs mainly take place in MNCs that focus on services. In manufacturing, offshoring reduces the number of low-skilled routine workers. However, the overall employment effects of offshoring are not conclusive. For example, Goos with colleagues (2014) asserted that the effects of globalisation are much smaller than those of technological change, while Mandelman and Zlate (2022) saw globalisation having a greater impact.

Changing Labour Supply

Another factor that can change the occupational structure is labour supply. As discussed above, there has been a constant race between technological development and education (Autor 2022). Investments in education have often been said to create an over-supply of people with higher education (Åberg 2003). However, in recent years there has been a constant under-supply of highly skilled workers in several occupations in Sweden, such as technicians and various professionals. While it is easy to interpret technological development as the driving force in this race, Acemoglu (2002) discussed an alternative interpretation. According to him, the 1970s over-supply of educated workers in the US (due to several educational reforms) was a precondition for the coming of the digital revolution in the 1980s and 1990s. The vast supply of higher educated workers, with their skills and creativity, was necessary to develop all the new applications of technology. Consequently, it was the supply that developed the technology and, ultimately, further demand for high-skilled workers.

While the growth at the upper end of the occupational structure is strongly related to the supply of higher educated, the question remains as to why the lower end, consisting of low-skilled non-routine jobs, often in the service sector, would increase. One explanation is that the growth of highly paid strata reinforces the demand for services, like restaurant visits, tourism, health-related services, etc. (Mazzolari and Ragusa 2013). However, this also requires a supply of workers ready to take on these kinds of jobs. While some are found among those that become redundant due to technological change, a strong inflow of immigrants has also taken place in several countries, including Sweden, who are often allocated to jobs in the low-paid sector (see Chapters 3 and 6). This mechanism has been proposed by Mandelman and Zlate (2022), who found that immigration in 1980–2010 strongly increased polarisation in the US by depressing wages and increased employment in the lower tail of the occupational distribution.

Institutional Changes

Fernández-Macías (2012) suggested institutional factors as explanations for the variation in occupational change in Europe. Regarding the Nordic region, he

proposed wage compression as a possible institutional mechanism for the upgrading pattern. This is probably an important factor in Sweden, which has the most compressed wage structure among the Nordic countries (see Chapter 2). A compressed-wage structure works unequivocally in the direction of upgrading by making low-skilled employment relatively expensive for employers, and high-skilled jobs relatively cheap. As will be discussed in Chapters 2, 10 and 11, the wage regime during the period in focus (1997–2015) has remained relatively intact and wage inequality has not increased. This seems to rule out changes in the wage regime as an explanation of potential polarisation.

However, one risk of having a rather rigid wage regime, with relatively high wages at the lower end, is unemployment (Oesch 2015). One way to minimise those risks, especially applied in the Nordic context, is to expand public employment as a supplier of several welfare services (child-, elderly-, healthcare, schooling, etc). In Sweden, the public sector expanded until the 1980s but started to contract in the 1990s (see Chapter 3). Instead, public means were used to open up for private providers of welfare. Moreover, the public sector was also reorganised in the direction of New Public Management (NPM). These new complexities have changed the features of the public sector to some extent, and it is unclear what this means for occupational change, and the gender characteristics of this structure (see Chapter 4).

Recent decades have been characterised by relatively high unemployment figures in Sweden and pressing down on unemployment is usually a high priority for governments (see Chapter 2). However, the strongly governed wage regime by the labour market parties does not give governments any direct opportunities to affect wage levels. Instead, they try to affect those in other ways – by subsidised employment through active labour market policies, by direct subsidies to households for purchasing personal services, and by tax cuts. This implies that governments have tried to increase employment at the lower end of the occupational structure, which could contribute to occupational change in the direction of polarisation.

One final important institutional factor in the present book concerns the regulations of temporary contracts and the rise of precarious employment. In the social sciences, the discussion of segmentation and flexibilisation of labour markets has been ongoing since the 1970s. Doeringer and Piore (1971) regarded the slicing of labour markets into a primary and secondary segment as a result of companies' manpower strategies, while Goldthorpe (1984) saw the flexibilisation of firms as a deliberate strategy of the employers to dismantle regulations that, since the Second World War, had decreased employer discretion. Recently, the flexibilisation of labour markets has been referred to as dualisation and described as a highly political process (Emmenegger *et al*. 2012). Politicians have been prepared to increase flexibility on the margin, by such methods as liberalising the use of temporary employment. Sweden has been described in the literature as a highly dualised labour market with very lax protection of temporaries, combined with strict protection of open-ended contracts (Emmenegger 2014; Thelen 2014; see Chapter 2).

The expected effect of increased use of temporaries is that the costs of hiring and firings decrease for the employer. This could increase employment in branches that are strongly affected by consumer demand and tight margins, mainly in low-paid service sector jobs, and thereby add to polarisation tendencies. Moreover, previous research has found that the share of temporary employment also presses down wages for open-ended contracts (Bellani and Bosio 2019). An additional perspective is the question of whether digitalisation creates new demands and opportunities for flexibility by affecting companies' manpower strategies (see Chapters 8 and 9).

The Swedish Polarisation Debate

The empirical evidence for a polarised direction of occupational change is inconclusive, and the pattern of change seems to variate strongly between countries. The introducers of the polarisation perspective, Autor and colleagues and Goos and Manning, found clear evidence of polarisation in both the US (1990–2000) and the UK (1979–1999) (Autor *et al*. 2006; Goos and Manning 2007). Similarly, Wright and Dwyer (2003) detected polarisation in the US labour market during the 1990s. However, moving the analysis to the European continent, the evidence of polarisation became less clear. Fernández-Macías (2012) studied several European countries in the period 1995–2007 and found disparate patterns. For example, polarisation appeared in the Netherlands, France and Germany, while Denmark, Finland and Sweden showed upgrading patterns. Accordingly, Fernández-Macías concluded that institutional factors (such as wage compression in the Nordic countries) also have an impact on occupational distribution and change.

The debate on occupational change is also present in Sweden. Åberg's (2015) analysis of the developments between 1997 and 2012 showed that the Swedish labour market and occupational structure changed in the 2000s broke the hitherto upgrading pattern by moving towards polarisation. Adermon and Gustavsson (2015) found similar results, while Berglund with colleagues (2022) showed weak tendencies of polarisation. Other researchers have called the Swedish polarisation a myth and shown that the Swedish labour market is continuously upgrading (Oesch and Piccitto 2019; Tåhlin 2019).

However, researchers have used different variables to analyse the transformations in the labour market. Åberg (2015) and Berglund and others (2022) used wages as indicators to explore changes in the occupational job structure. Tåhlin (2019), on the other hand, used skills and qualifications. Oesch and Piccitto (2019) studied the transformations in a multidimensional way by using job quality, median wages, job satisfaction, educational level and occupational prestige.

The Swedish debate is not settled, and the evidence is inconclusive. As this book aims to scrutinise polarisation, we provide further evidence on the direction of occupational transformation by using several different indicators. Moreover, besides the canonical research agenda, with the presidency of

technological change as the main explanatory factor, we approach polarisation from different perspectives, which enables us to illustrate multidimensionality and the significance of other factors for the direction of change and its consequence.

Some Key Concepts

In this book, we explore different kinds of hierarchical structures of occupations, such as skills, wages and prestige. Even though the different contributions discuss and define relevant concepts within the chapters, there are some concepts we want to address here to establish a common ground.

Occupation, Skills and Wages

At the centre of the discussion of the transformation of the labour market are occupations. *Occupation* may be defined in different ways depending on the context and meaning (Taylor 1968). In the most basic form, occupation is defined in line with a job, as a bundle of typical work tasks that is conducted within the employment (Taylor 1968; cf. Furåker 2005). Still, occupations tend to vary in skill levels, and a somewhat more elaborated definition also considers such aspects. In this section, we make use of Weber's definition to discuss the concept of occupation.

According to Weber (1983: 95), an occupation not only concerns the specification – that is, the bundle of tasks – but also specialisation, relating to skills and qualifications. The clearest expressions of occupations as a combination of specification and specialisation are found in the standardised occupational classifications, such as the *International Standard Classification of Occupations* (ISCO 08 with its predecessor ISCO 88) and the Swedish version, SSYK 2012 (with its predecessor, SSYK 96, mainly used in this book). These classifications are commonly used in research on transformations of the job structure.

The standardised classification systems revolve around job complexity, qualifications and skills for occupations, as the occupational hierarchy is built around these concepts (Hansen 2001). The *complexity* of a job, or occupation, is accessed through benchmarking and/or job evaluations and concerns the level of autonomy and responsibilities in the duties, or tasks. Thus, the job complexity relates to job evaluations used to the pricing of jobs (Ulfsdotter Eriksson, *et al*. 2021b). The complexity also determines the *qualification level* and *demands*. Qualification demands put the tasks at the centre as they specify what knowledge and competence are required to accomplish certain tasks. Competence or skills, on the other hand, are individual-oriented and focus on the individual's resources and knowledge (Svensson 2017).

Weber's definition of occupation also emphasised that the occupation was key for earning a living – a 'combination of an individual's achievements that constitute the basis of his possibilities for a continuous livelihood' (1983: 95). However, recent research has challenged the *continuous* aspects of the

occupation, as a lot of work is conducted under precarious and insecure conditions. Furåker (2005: 18ff) pointed out that a wage is an economic remuneration the employee receives for renting out human labour for a certain period. However, this definition does not take into account the complex process around pricing (Ulfsdotter Eriksson *et al*. 2021a, 2021b). The price of a specific job is determined based on both thorough job evaluations and market comparisons and regulated through institutional frameworks such as collective agreements. The Swedish wage formation system has been decentralised since the 1990s and individualised performance-related pay has become increasingly common (Baccaro and Howell 2017; see Chapter 10). This has increased employers' discretion over the pay setting, for example, with annual performance evaluations affecting the wages for many white-collar occupations.

More elaborated definitions of occupation also consider the importance of the occupation for the individual's more complex life situation. Hall (1969:5f) stressed that occupation has both financial and social consequences for the individual. While financial aspects concern differences in wages, the social, or symbolic, consequences concern differences in social rewards such as recognition, honour and esteem. In the sociology of occupations, occupational prestige is used to describe social and symbolic valuations of occupations (Treiman 1977; cf. Oesch and Piccitto 2019; see Chapters 4 and 5).

Polarisation

In social science, as well as in the news and popular media, polarisation has become something of a buzzword. While often used regarding political opinions and standpoints, it also appears in other contexts to describe various social phenomena. The term polarisation is borrowed from physics, in which it describes light and sound waves (Britannica, n.d.). Within the social sciences, polarisation is used to describe how groups, opinions or any other outcome, cluster at the end-poles of a continuum. It may concern changes in the occupational structure (Autor *et al*. 2006), income inequalities (Esteban and Ray 1994), political opinion and attitudes (DiMaggio *et al*. 1996; Baldassarri and Bearman 2007); or spatial segregation (Morales *et al*. 2019). Still, when considered as a theoretical concept, it is a concept that has been remarkably little discussed and defined (Bramson *et al*. 2016; McCarty 2019), not least from a sociological point of view.

To *polarise* means to 'separate or make people separate into two groups', and *polarisation* concerns processes over time; that is, 'the act of separating or making people separate into two groups with completely opposite opinions' (Oxford Learners Dictionaries, n.d.). These lexica definitions are in line with DiMaggio *et al*. (1996), who stressed that polarisation is both a state and a process. As a state, polarisation describes the *polarity* of opposing opinions, whereas as a process it describes increasing gaps over time (cf. McCarty 2019). This resembles Anderson (2004:2), who stated that polarisation points to 'the disappearance of mass at the center of an empirical distribution or the

increasing distance between and intensity of multiple points of modality as it evolves over time'.

Researching primarily attitudes and opinions, DiMaggio and others (1996: 692) pointed out that polarisation should not be mistaken for 'noisy activity' as 'polarization refers to the extent of disagreement, not to the ways in which disagreement is expressed'. Thus, the noisiness and frequent use of the term polarisation does not necessarily mean that there is an actual polarisation. Baldassarri and Bearman (2007: 808) also emphasised 'perceived and actual polarisation' and stressed that 'political elites and party activities are increasingly polarized, ordinary citizens are not' (2007: 786). Despite the increasing economic inequality, polarisation in opinion has not increased among the general public, except in some sensitive and/or controversial 'take off' topics that tend to split also people in general.

Within economics, Esteban and Ray (1994) introduced and developed the concept of polarisation as a measurement for macroeconomic analyses of income inequalities. They argued that polarisation is different from inequality. Whereas inequality concerns differences between individuals, polarisation aims to describe differences between distinct groups. Inequality 'describes the proportions of the population possessing attributes in any subset', while polarisation captures how 'the population is grouped into significantly-sized "clusters", such that each cluster is very "similar" in terms of the attributes of its members, but different clusters have members with very "dissimilar" attributes' (Esteban and Ray 1994: 819). Thus, a society can have a low degree of inequality and still be polarised if it is divided into 'substantial intra-group homogeneity and inter-group heterogeneity' (1994:829). For a society or a social phenomenon in society to be characterised as polarised, it needs to be possible to identify a small number of large groups that are characterised by intra-group homogeneity and high inter-group heterogeneity (Esteban and Ray 1994).

From an economical perspective, Duclos and Taptué (2015) elaborated on the conceptualisation of polarisation and distinguished different 'types', which we, from a more sociological perspective, will try to connect to in the empirical analyses conducted in the chapters of this book, as well as in the concluding chapter.

What Duclos and Taptué (2015:303) called *income polarisation* concerns 'the univariate distribution of a cardinal variable of interest', which often entails interests relating to welfare. Still, income polarisation is not restricted to financial resources but may also be political attitudes, occupation or prestige. Approaching polarisation from this stance implies focusing on the distribution and clustering of a certain resource (material or symbolic). We find the term income polarisation limiting as it draws attention to mere economic aspects, like wages. To make it more applicable to other 'variables of interest' we call it *value polarisation*, which in some chapters in this book is used to explore the distribution of, for instance, wages, skills, and occupational prestige.

Bi-polarisation concerns 'distances across two groups' and whether gaps between groups increase or decrease, with the focus on the distribution of a 'cardinal variable of interest' (Duclos and Taptué 2015: 304). The groups, or

social categories, should be clearly identifiable – such as women/men, native-born/foreign-born, rich/poor, permanently employed/temporarily employed or low-prestige/high-prestige occupations. The term bi-polarisation is used in this book to discuss the ways in which the distance between specific social categories has developed. Regarding attitudes, perceptions or opinions, bi-polarisation occurs when individuals, through taking a stand, increasingly adopt opposing positions and the extremes increase on a value scale.

Social polarisation focuses on the qualitative characteristics of social categories. This type of polarisation is not dependent on or interested in quantitative measures of distance between groups but considers the number and size of social groups. As Duclos and Taptué (2015: 305) put it, 'the larger the size of another group, the greater the threat felt by any given group'. Thus, social polarisation concerns the power relations between majority and minority groups, such as native-born/foreign-born, women/men, and rural/urban.

Ethical Implications of Polarisation

Discussions on labour market polarisation tend to be centred on economic consequences and how educational systems can keep pace with digital transformation and facilitate transitions into the expanding sectors of the economy. However, less attention has been given to the potential wider social consequences of this transformation; that is, how these changes translate into wider cultural changes and how it affects inequalities in gender, age, social class, ethnicity and so forth.

Reckwitz (2021) discussed polarisation and its consequences on the class structure. Similar to Bourdieu (1984), he acknowledged both the material (economic) and cultural aspects of social class: 'Classes are more than just statistical income levels, and they are also more than just everyday lifestyles. Classes are cultural, economic, and political *configurations* at the same time' (2021: 35). Bourdieu argued that the transition from an industrial society to a post-industrial society in the Western world's late modernity has challenged social stratification and class structure.

Reckwitz (2021) identified three polarising mechanisms underlying the new class structure. Firstly, *the post-industrial labour market* is a prime mover of polarisation, with a need for highly educated knowledge workers, a devaluation of non-academic knowledge of the old middle class (that is, skilled workers in crafts jobs), and a residual of low-skilled service workers. Secondly, *education* has become a polarising force that distinguishes between those who have an academic education and those who have not. Lastly, *culture* is also described as a polarising mechanism that distinguishes between the self-actualisation of the new middle class and the orientation towards duty and morality in the old middle class. Thus, Reckwitz identified the new middle class as winners and the old middle class and the precarious underclass as losers in the polarised post-industrial society due to different access to highly qualified jobs, attractive educations and 'proper' cultural orientations.

As becomes clear from this perspective, the study of polarisation is also 'important for ethical reasons' as a means to identify potential 'tensions and conflicts' among different social categories and groups (Duclos and Taptué 2015: 302). It is ethically important to study and scrutinise polarisation since overly large differences between social categories and groups go against core values in egalitarian societies, like Sweden. As argued by Duclos and Taptué (2015: 306), 'The hollowing out of the earnings distribution and the disappearance of the middle-class may, for instance, create a more segregated and an intrinsically less good society.' Augmented differences among different groups risk leading to increased instability and tensions, as income inequalities often lead to conflict (Esteban and Ray 2011).

Scrutinising Polarisation in Various Swedish Labour Market Contexts

As the title suggests, this book scrutinises polarisation in contemporary Sweden by exploring patterns and consequences of occupational transformations in the labour market. It contains empirically founded chapters that analyse different aspects of how a variety of changes in Swedish labour market policy and practice may have contributed to increased inequalities in working life or even polarisation among different groups in the labour market. The book is characterised by both taking a broad approach and describing overall changes in the labour market and by closely focusing on certain specific areas.

Briefly, the remainder of the book is structure as follows. Chapters 2 and 3 are written by Tomas Berglund. Chapter 2 provides an overview of the Swedish institutional setting and of important changes in the last three decades; that is, the period in focus in the book. Chapter 3 focuses on changes in the Swedish occupational structure and tries to answer the question of whether it is polarising or not, using several different indicators.

Chapters 4 and 5 focus on occupational prestige; that is, the symbolic and cultural evaluation of occupations. Ylva Ulfsdotter Eriksson and Erica Nordlander (Chapter 4) analyse changes in employment within the occupational prestige hierarchy and whether such changes affect the prestige of occupations. Chapter 5, by Ulfsdotter Eriksson, scrutinises polarisation in perceptions of occupational prestige and studies whether prestige perceptions have changed over time and between social categories.

Chapter 6, by Gabriella Elgenius, Denis Frank, Vedran Omanović and Tomas Berglund, explores changing career opportunities of immigrants over time, with a specific focus on second-generation migrants.

Chapters 7, 8 and 9 turn the focus to the practices of organisations and how these may add or counteract polarisation tendencies in the labour market and changes in job quality. Chapter 7, by Lotta Dellve, Linda Corin, Hans Ekbrand and Gunnel Hensing, provides an overview of changes in general working conditions, as well as in sick leave patterns since the 1990s in Sweden. In Chapter 8, Anna Hedenus and Erica Nordlander, elaborate on how the organisational strategies of digitalisation and flexibilisation interact and

affect an organisation's employment strategies. Chapter 9, by Sophie Banasiak and Kristin Jesnes, focuses on employment in so-called platform companies and analyses the working conditions, as well opportunities for voice and protest among those workers.

Chapter 10, authored by Jesper Prytz and Bengt Larsson, focuses on changes in trade union membership and whether attitudes towards unions have become more individualised since the 1990s. Chapter 11, by Tomas Berglund, studies changes in wage and income inequality in Sweden in the period 1997–2015.

The book ends with a concluding chapter (Chapter 12) in which the two editors of this volume reflect on which direction the overall results of this book point; specifically, is the Swedish labour market polarising, and what implications can we conclude from these studies for the Swedish labour market and society.

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2 The Swedish Labour Market Model in Transition

Tomas Berglund

Introduction

Technological developments and changes in the occupational structure do not take place in a vacuum, free from contextual constraints and institutional effects. In the present case, the context is the Swedish society and labour market and the structural and institutional changes that have taken place in the last 30 years. These aspects must be considered when searching for explanations for the direction of occupational change, and to escape naïve technological determinism.

For a long time, the exceptionalism of the so-called Swedish model warranted international attention, which meant that research from Sweden attracted more general interest. The interest came from the middle way between Capitalism and Communism that Sweden turned to during the twentieth century. This middle way evolved step by step, with the labour movement and the Social Democratic Workers Party playing decisive roles, achieving incremental gains in the 'Democratic Class Struggle', as famously described by the sociologist Walter Korpi (1983). The socioeconomic results of the Swedish model were at their height in the 1980s, with extremely low unemployment figures, general welfare reaching unprecedented levels, and a large public sector employing up to 40 per cent of all employees (Berglund and Esser 2014). In working life, democratic ambitions and union influence gained significant ground, and strict employment protection, combined with generous unemployment benefits and large investments in active labour market policies, made workers highly secure in the labour market (Bengtsson and Berglund 2012; Sandberg 2013). Moreover, social inequalities in the 1980s were historically and internationally low, and the wage share of GDP was larger than it had ever been before (Bengtsson 2014). In 1983, a proposal of Wage-Earner Funds was implemented by the returning social democratic government, to increase employees' influence on the expense of private ownership in large companies (Furåker 2016).

However, the 1980s was also the last decade in which the classic Swedish model was still intact, even though the cracks had become increasingly visible for some time. In the 1990s, Sweden went into a deep recession and financial

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crisis, where unemployment levels (after more than 40 years of full employment; that is, below 3 per cent) – rose to double-digits in just a few years – levels that had not been seen since the 1930s. Politically, the decade was a critical juncture, a formative period, when large institutional changes took place, including joining the European Union (EU), changes in the parliamentary system, the organisation of welfare, labour market regulations, and transformations of the industrial relation system. All of these changes have had fundamental consequences for the Swedish labour market model. Some have claimed that the model was dissolved and that Sweden became a fully-fledged neoliberal society (e.g., Baccaro and Howell 2017), while others saw the Nordic/Swedish model adapting to new circumstances in a globalised world, but still retaining its main traits (Dølvik *et al*. 2015).

This chapter starts by briefly describing the main features of the pre-1990s Swedish labour market and societal model, before discussing important changes that have taken place since the 1990s crisis. It continues with a discussion of some influential research on the Nordic models, and the consequences of institutional changes. The chapter ends by highlighting the most significant factors with implications of the shifting occupational structure in Sweden.

The Rise of the Swedish Model

Recent research has shown that, at the beginning of the twentieth century, Sweden was one of the most unequal societies, both socially and politically, in the Western world (Bengtsson 2019). Therefore, it comes as no surprise that Sweden was strongly conflict-ridden in the first decades of the century. In those years, the labour movement – with its political branch, the Social Democratic Worker's Party (SAP, founded 1889) and the main union confederation Landsorganisationen (LO, founded 1898) – mainly fought for the right to organise workers, and, together with several other civil movement organisations, the introduction of general suffrage.

In 1921, the suffrage movement reached the goal of a universal right to vote for both women and men. Thereafter, SAP won early electoral support and formed governments in the 1920s, although it was not until 1932 that a strong Social Democratic government was formed, with Per-Albin Hansson as prime minister. SAP was in power for nearly all of the 60 years that followed, with the exceptions of a social-democratic-led general coalition during the Second World War and two centre-right governments from 1976 to 1982.

In parallel to the fight for political rights, the first third of the century saw fierce battles in the labour market between the unions and the main employer organisation SAF (the Swedish Employers' Confederation, founded in 1902). The conflicts concerned the right to organise at the workplaces, demands for better wages, eight-hour working days, and other working conditions. However, over time, several compromises were reached, with the so-called Saltsjöbad Agreement in 1938 as the emblematic conclusion.

The strong ties between SAP and LO made political reforms in favour of the interests of the labour movement a central concern for SAP governments. However, the cornerstone of the Saltsjöbad Agreement was that collective agreements between the parties on the labour market – employers and unions – should regulate the main conditions, without any interference from the state (Lundh 2010). Consequently, the SAP governments focused mainly on general welfare reforms, such as universal sick insurance, a general pension system, support for families, and expansions of health care, daycare centres, etc., rather than directly reforming the labour market. In the 1960s, the public sector started to expand strongly; in 1970, the sector comprised 29 per cent of all employees, a number that continued to increase into the 1980s, when it reached over 40 per cent.

Therefore, Esping-Andersen's (1990) description of the Nordic welfare states, with Sweden more or less as the ideal type, as a 'social-democratic welfare regime', seems adequate. Of course, all these reforms affected the labour market and workers' general bargaining power by decreasing peoples' dependence on paid work for their living standard – the so-called decommodifying effect of the welfare state (Esping-Andersen 1990). In parallel, the main objective of the social democratic governments was to achieve full employment, keeping unemployment at very low levels (Lindvall 2010). This was implemented indirectly by the expanding public welfare sector, as well as in a subsidised construction industry modernising the poor housing standard in Sweden (Schön 2007). This also improved workers' positions, escaping the disciplinary effect of unemployment (Shapiro and Stiglitz 1984).

However, two main reforms in the first half of the social democratic reign directly affected the power relations in and functioning of the labour market. Firstly, in 1934, the government decided to subsidise unions' unemployment funds, introducing the so-called Ghent system (Clasen and Viebrock 2008). Until then, support for unemployed union members was marginal. When the state added resources to the funds, the level of generosity could increase. However, the drawback was that the union lost control over the insurance and also had to open the funds up to non-union members. Still, the unions administered the funds and workers associated union membership with unemployment benefits. Consequently, the Ghent system strongly supported high union density and became an essential contributor to a main union power resource – the number of organised. However, the Ghent system also implanted the potential for future political conflicts when political majorities and priorities started to change (Lindellee and Berglund 2022. See also Chapter 10).

Another institution indirectly backed up by the government was the Solidaristic Wage Policy. This policy was initiated in the 1950s after an initiative from the LO, with the two LO economists, Gösta Rehn and Rudolf Meidner, as the main architects (Pontusson and Swenson 1996; Erixon 2010). Between 1956 and 1983, overall wage bargaining was centralised in the private sector and decided in negotiations between SAF and LO. These settlements initially followed the principle of 'equal wage for equal work' with the general

effect of equalisation of wages between industries and sectors. Furthermore, the Solidaristic Wage Policy put pressure on industries with low potential for productivity gains, while the centrally decided wage constraints hampered wage drift in highly productive industries. One side effect of the policy was the risk of creating 'islands of unemployment' (Rehn in Erixson 2010), where wage demands put small businesses with low productivity into bankruptcy. The upside was the growth of higher-quality employment, as more productive sectors of the economy benefited. To combat the risk of structural unemployment, the state developed a system of active labour market measures. These included a national public employment service and support for unemployed to re-train for jobs in growing industries, particularly the manufacturing industries, as well as support for workers to move and commute to regions with growing sectors.

Thus, the reforms that the SAP governments implemented during the first three decades of their reign did not directly affect areas that employers and unions defined as their concerns. However, this changed in the 1970s. The turbulent end of the 1960s, with student revolts and strikes in several European countries, also affected Sweden, with a main catalyst being the miners' strike of 1969–70, protesting against both working conditions and wages. In LO, voices started to be heard to new qualitative steps to improve working conditions, and the democratic influence of production was seen as essential (Ryner 2002: 132ff). The radicalisation of the labour movement made the SAP government react, which initiated a series of reforms, such as The Law of Worker Representatives in the Board of Large Companies 1973, Employment Protection Legislation in 1974, and The Co-Determination Act 1976. These laws increased workers' direct influence over the operations and strategic decisions of companies. Moreover, in 1976 LO presented a radical proposal of wage-earner funds, which suggested that some of the potential wage increases should go to union-controlled funds and be used to buy shares in large companies (Ryner 2002:138ff). In this way, democratic control in private companies could be achieved. The SAP government that returned to power in 1982 introduced wage earners' funds, although in a less radical version than LO's original proposal (see Furåker 2016).

However, the changes during the 1970s created reactions from the employer side and their allied political parties, especially the Conservative Party (Blyth 2001; Ryner 2002). The legislation that gave the unions operative influence in the companies was considered a breach of basic agreements between the parties where the unions had accepted the employer's right to lead the company. In addition, the wage-earner funds were regarded as striking against fundamental ideological values, including the right to private property. The consensual spirit of the Saltsjöbad agreement seemed to weather away on the 1970s conflictual labour market with strikes and lockouts, and with a parallel radicalisation on the employer side in their fight against the wage-earner funds.

The cracks in the Swedish labour market model became evident in the 1980s. Even though the model was at its height when it came to generosity in welfare,

the size of the public sector, labour rights, employment rates as well as general equality, problems started to pile up. The first was inflation rates, which were at double-digit levels for several years during the 1970s and continued at a high level in the 1980s. Secondly, concerns about the growth and competitiveness of the Swedish economy started to take hold of economists and politicians. The lagging behind was blamed on, among other things, the generous and large welfare state, which demanded high taxes for its financing and decreased the levels of private-sector investment (Lindbeck 1997). The subsequent devaluations of the Krona no longer seemed to be a viable way of restoring competitiveness. Thirdly, and more generally, the Keynesian economic paradigm lost credibility after the 1970s, when several countries experienced stagflation (a combination of high inflation and unemployment). A new generation of economists, in the Social Democratic Party and the government, found the answers to the situation in neoclassical economic theories, prioritising monetary policies to reduce inflation and stabilise currencies rather than finance policies aiming at full employment (Lindvall 2010).

Moreover, the centralisation of wage bargaining, which had been a centrepiece in the Solidaristic Wage Policy, started to crack. The starting point was in 1983, when the Engineering Employers (Verkstadsföreningen) convinced the metalworkers union to have their industry-level agreement disregarding the central-level bargaining of SAF and LO (Pontusson and Swenson 1996). The background was discontent with the more general equalising tendencies of wages between occupations/within companies during bargaining in the 1970s, and the problems that central bargaining created for wage-setting on the local level (Lundh 2008). After a period with returns and breakdowns of central bargaining, in 1990 SAF decided to leave all future peak-level negotiations.

The Crisis of the Model

Contemporarily with the fall of the Berlin Wall in 1989 and the collapse of the Soviet Union in 1991, the Swedish Middle Way in many ways also came to an end. The 1990s became a decade of crisis when many of the old convictions were thrown overboard and fundamental institutional changes took place, including joining the EU in 1995. The centre-right government elected in 1991 proclaimed a 'system shift' and 'politics of the only way' to get rid of previous decades' priorities, such as full employment and public sector expansion. It was time to follow a similar path to many other countries, in line with Thatcher and Reagan's neoliberal revolutions.

A crucial precondition giving leverage to the reform advocates was the deep economic crisis that Sweden fell into at the beginning of the 1990s. Of course, the crisis had several and complex causes, including structural problems in the Swedish economy (such as inflation and reduced competitiveness of export industries) and external factors (the simultaneous recession in several other countries). However, many of the problems were also self-induced. In particular, in the 1980s the social democratic government had implemented reforms

with the purpose of curbing imbalances in the economy (Jonung 1999; Larsson 2001). In 1985, bank restrictions for credits were abolished, and in 1989 the government also took away Swedish currency regulations. The effects of these reforms were that Swedes started to lend at an unprecedented scale and that financial actors invested in real estate, both in Sweden and abroad. Moreover, in 1990, a general tax reform was implemented that reduced company taxes and decreased the progressivity in income taxes. However, the reform was underfinanced, calculated to break even with an expanding tax base (that is, more people in employment).

The crisis hit Sweden exceptionally hard. It started in 1990 with an accelerating outflow of money when foreign investors lost faith in the Swedish economy (that is, the risk of a new devaluation). The crisis deepened when the unfolding international real estate crisis decreased the value of investments of highly leveraged Swedish investors, which made several large Swedish banks more or less insolvent (the government needed to create a 'bank emergency' to save them) (Larsson 2001). The crisis spread to the real economy, first to the export industries that started to dismiss staff, and later to the public sector, which was reduced when the state faced rampant public debt. The unemployment figures exploded, reaching 10 per cent in 1996 (see Figure 2.1). In the Swedish context, these figures were a complete shock after decades of full employment.

When the crisis unfolded, public expenditures strongly increased as a consequence of costs for unemployment benefits, active labour market measures, and a commitment to save the banks, while tax revenues decreased due to the

Figure 2.1 Percentage of people aged 16–64 years (from 2007, 15–64) who were unemployed. Data retrieved from OECD Database.

under-financed tax reform. Consequently, public debt doubled in a few years, reaching over 80 per cent. Among politicians, economists and the general public, a state of emergency arose and opportunities for large changes in the Swedish model occurred. In 1991, the centre-right government appointed a public inquiry, led by the renowned economist Assar Lindbeck. This came up with radical proposals, which were more or less directly implemented by both conservative and social democratic governments in the coming years. These included several changes in the parliamentary system to restrain expansive finance policies, a goal of saving in the state finances, an independent central bank with a target goal of low inflation (2 per cent), and a more efficient public sector by opening up for private providers (Berglund and Esser 2014).

Also, the industrial relations system changed, but perhaps in an unexpected direction compared to the tendencies of decentralisation that were seen in the 1980s. After SAF left central bargaining with LO in 1990, bargaining became decentralised to the industry level and the local level. However, due to the severe state of the economy, the parties agreed in the so-called Rehnberg Agreement to keep wage increases at modest levels between 1991 and 1993 (Elvander 1997). After that, the negotiations returned to the industry level and the local level without any coordination. The result became chaotic, with several strikes and high wage increases. However, the precarious state of the Swedish economy led the social democratic government to put pressure on the labour market parties to again take more general economic responsibility for their agreements (Elvander 2003).

In this situation, employers and unions (both blue- and white-collar) within manufacturing and export industries took the opportunity to introduce a new model for coordinated negotiations – the so-called Industrial Agreement (IA), which was launched in 1997. The agreement included several corporative components – a committee including the parties, an expert council appointed by the committee, as well as a new order for wage bargaining. The latter stipulated that a new agreement should be in place before the current one expired and involved an impartial mediator during the last month of negotiations. Moreover, the parties' ambition was that the agreement in those industries should constitute a norm for wage increases for the rest of the labour market – the so-called 'märket' (the mark).

These ambitions have mainly succeeded, albeit with some strain between the parties about special agreements for low-paid categories within the retail and public sectors. Moreover, the norm-setting of the IA became further enforced by the establishment of the National Mediating Office in 2001 with the assignment of promoting the IA as the norm for wages in the entire labour market. Furthermore, in this new negotiating system, LO has found a new role in coordinating the industry-level unions' demands in relation to the mark.

Ironically, the employer organisations and unions that started the process of dissolving central bargaining in the early 1980s were the ones that reintroduced a new overall wage-setting regime on the Swedish labour market. However, this time, there are no straightforward agreements that set the rules for the parties,

but a complex system of norms that has resulted in few industrial conflicts, real-wage increases (but modest nominal increases) and kept a solidaristic element in wage formation (Berglund and Esser 2014).

The Reconstruction of the Swedish Model

The many changes that have taken place in recent decades have provided reasons to believe that the Swedish model has more or less dissolved. Evidently, large changes relate to the welfare system, such as opening up for private providers, tightening the social insurance system, and the privatisation of public companies. However, the universal access to welfare financed through the tax bill rather than by private insurance is still mainly intact, although a market of parallel private insurance has grown. The public sector still employs a sizeable share of the workforce – approximately 30 per cent of all employees – but this share has dropped considerably since the 1980s.

Regarding the industrial relation system, Baccaro and Howell (2017) claimed that Sweden has turned down a neoliberal path. By dissolving central bargaining and with wage formation at the industry, local and even individual levels, any remnants of the Solidaristic Wage Policy are gone. Other research shows that changes are more ambiguous. Ulfsdotter Eriksson and colleagues (2021) agreed that wage formation has become individualised over time, especially in the public sector and among white-collar workers. However, local managers' discretion over wage-setting is strongly circumscribed by the 'mark' from IA as a roof of total wage increases at the local workplace. Moreover, strong expectations exist among co-workers to be treated fair and with wage increases that are at least similar to the mark. In another study, Marginson and Dølvik (2020) clearly disagree with Baccaro and Howell's thesis of a general convergence in Europe in a neoliberal direction. The Nordic countries have recalibrated their industrial relation systems, but this has not resulted in galloping wage inequality. Particularly in Sweden, wage inequality is still at an internationally low level and only increasing modestly (see also Chapter 11).

While changes have evidently taken place in the Swedish industrial relations system over the last 30 years, several of its main traits are still intact. Union density is at an internationally high level (see Chapter 10) and collective agreements regulate large parts of the labour market. Moreover, the system still seems to reproduce some of its original solidaristic ambitions of wage equality. On the other hand, *income inequality* has increased strongly in Sweden since the 1980s as an effect of decreased generosity in the welfare system and a strong evolving stock market (OECD 2015; see Chapter 11). However, other factors explaining income inequality relate to changing features of the labour market.

Firstly, labour market policies have transformed since the 1980s. At the end of that decade, the generosity of unemployment benefits peaked with a replacement rate of up to 90 per cent of the former wage (Berglund and Esser 2014). Since then, governments have been inclined to decrease their generosity (Bengtsson and Berglund 2012). Especially when the centre-right government

took office in 2006, large changes in the unemployment insurance were introduced (see Chapter 10). Those changes led not only to weakened income protection for workers but also to the unions losing members. Thus, the risks of the Ghent system became clear: the system adds to a main power resource for the unions – membership figures – when it is protected by a sympathetic government but makes unions vulnerable if governments are ready to hurt them through the system (see Lindellee and Berglund 2022).

The last 30 years have also seen significant changes in the system of active labour market programs (ALMP). As described, ALMP was a cornerstone for the Solidaristic Wage Policy as the pressure on low-productive industries required workers at risk of unemployment to move to more productive jobs within the economy. A key measure was training and reskilling to prepare workers for those jobs. When unemployment skyrocketed in the 1990s, training was, as in previous times, believed to be the main measure to expand (Lindvall 2011; Bengtsson and Berglund 2012). However, difficulties emerged with regard to predicting which branches training should be directed towards and keeping up the quality of measures rigged for a full-employment labour market. After the crisis, influential economists questioned the efficiency of the until-then-present system of ALMP and instead advocated subsidised employment as a more efficient measure to reduce unemployment (Calmfors *et al*. 2001). Since the crisis, subsidised employment has continued to be the most commonly used measure, while the use of training has been strongly reduced (Bengtsson and Berglund 2012). However, compared with the overall purpose of Solidaristic Wage Policies, subsidised employment counteracted those ambitions as the branches with the lowest productivity and wages usually benefited from the subsidies (Erixon 2010).

A further important change in the Swedish labour market institutions relates to the increased use of temporary contracts. As described above, the union offensive in the 1970s resulted, among other things, in the Employment Protection Law (EPL) in 1974. This law strongly increased workers' job security and circumscribed the use of temporary contracts. However, the 1974 law was criticised by the employer side for being too rigid and intruding on employers' discretion over hiring and firing practices. Since then, the law has been changed several times, although these changes have not (until recently, see below) affected the protection of employees with open-ended contracts (that is, permanent employees). Instead, flexibility has been instated on the margin by increasing the possibilities of using temporary contracts. Both centre-right and social democratic governments have implemented those changes; for example, in 1982 and 1997 (see Berglund *et al*. 2017). However, in 2007 the centre-right government made a major change, implying that employers are free to employ any number of temporary staff without any requirements to specify reasons. This has entailed that employment on demand has evolved as the most used type of temporary employment (Alfonsson 2020). Thus, the characterisation of the Swedish labour market as highly dualised seems not to be an exaggeration (Emmenegger 2014; Thelen 2014; also Chapters 1 and 8).

While dualisation tendencies have been distinctive for the period in focus in this volume, recent changes in the EPL have decreased the protection for employees with open-ended contracts (Lindellee and Berglund 2022). In the summer of 2022, a reformed EPL was introduced that made it easier for employers to dismiss permanent employees, while also reducing the time required for a temporary contract to turn into an open-ended one, thereby increasing the protection for temporary employees. These changes were accepted by the unions as ambitious lifelong learning measures came into place. However, what those changes imply for the protection of workers and the flexibility of employers is not yet clear.

A New Macroeconomic Regime

As described in this chapter, the 1990s was really a formative moment of a new macroeconomic paradigm taking shape in Sweden. The decade was the starting point of large reforms in a direction that is best described as neoliberal: Privatisations of public properties, the opening up for private providers of welfare, large tax cuts, less generous social security systems, reduced active labour market policies, and increased flexibility on the labour market.

The macroeconomic priorities of governments also changed. Until the 1990s, full employment was the top priority of both left and right governments (Lindvall 2010). The public sector expansion entailed that a large part of the population participated in the labour force, and huge investments in labour market measures pressed down unemployment on the margin. Moreover, governments were prepared to safeguard Swedish export industries by devaluing the Swedish currency.

However, the shock of the 1990s fundamentally altered governments' priorities. Now, fighting inflation became most important, and increasing unemployment levels were a price that governments and voters were prepared to pay. A low-inflation regime was set in motion by the introduction of a new institutional framework (Berglund and Esser 2014). This included: (1) an independent central bank with the overall goal of keeping the inflation rate hovering around 2 per cent by appropriately adjusting the policy rate (repo rate); (2) new rules regarding the process of deciding the governmental budget (overriding expenditures decided by the parliament) and an institutionalised goal of yearly public savings of 2 per cent (later 1 per cent) to decrease the national debt that had skyrocketed during the 1990s; (3) the Industrial Agreement that has efficiently controlled wage increases to keep Swedish export industries competitive on international markets.

Using a concept from the literature on political economy, these three institutional changes can be regarded as complementary. In other words, the interactive effect of those institutions reinforces an outcome; in this case, low inflation (Hall and Soskice 2001). Figure 2.2 shows the relationship between unemployment and inflation. It clearly shows the shift from the full-employment regime before the 1990s to the low-inflation regime. The last year to have a low

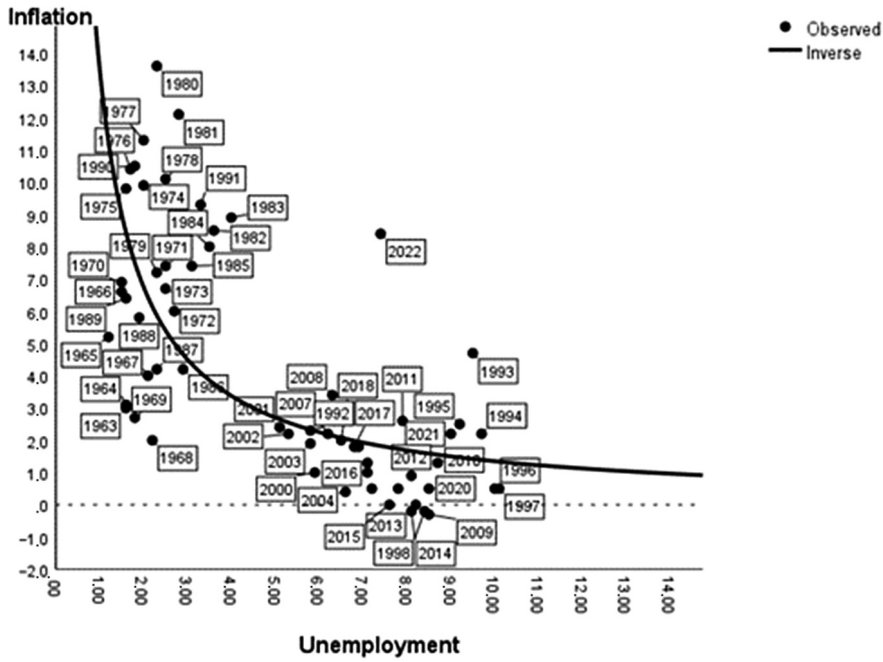

Figure 2.2 Inflation and unemployment, in percentages. Data retrieved from OECD Database and Statistics Sweden.

unemployment rate and very high inflation was 1991. In no single year before that did unemployment exceed 4 per cent. However, since 1992 the unemployment rate has surpassed 5 per cent, while inflation has dropped to very low levels. In fact, inflation has been much lower than 2 per cent in most years since the 1990s; the mean level from 1995–2012 was 1.3 per cent (Berglund and Esser 2014). Consequently, Sweden has established a rather efficient low-inflation regime, but at the cost of sticky unemployment at historically high levels. While the low-inflation regime is not the focus of the current study, it does seem to have faced trouble after the pandemic, as shown by the figure for 2022.

According to Erixon and Pontusson (2022), the recovery of the Swedish economy after the crisis was mainly led by the export industries. Those industries benefited strongly from the devaluation of the Swedish currency, when the government abounded the pegging of the Krona to the ECU, allowing it to float. However, the authors argued that it was not only industrial production (manufacturing) that was important for the recovery; both sheltered services and the evolving business services made the Swedish economy thrive until the financial crisis in 2009. Compared to Germany, the sheltered sector benefited from the Industrial Agreement, and has seen real wage increases that were not found in Germany. When low-paid strata of the economy are also included in income increases, domestic consumption is boosted. Regarding business

services, this industry benefited from the ICT revolution, where Sweden and large companies such as Ericsson were at the forefront.

With recent theoretical concepts from political economy, the Swedish growth model from 1994 to 2007 is described as export-led, but balanced, due to the parallel importance of general wage increases for domestic consumption (Baccaro and Pontusson 2016). This model contrasts with the German model, where growth during the same period was profit- and export-led. However, after the financial crisis, the authors depicted the balanced Swedish growth model as a consumption-led model, while the export industries – despite still being very important – have been reduced as the engine of growth. An important reason for this is increased private lending, combined with a growing financial sector, feeding consumption in the economy. This is a consequence of decreased interest rates after the financial and Euro crisis as a means for central banks to stimulate economies.

The new economic paradigm of low inflation after the 1990s moved Sweden in a neoliberal direction. However, some of its former features have survived, particularly the strong coordination of bargaining which also secures wage increases in the lowest-paid occupations. Erixon and Pontusson (2022) found a continuation of a growth model that still also relies on wage increases in domestic sectors, and not only on profit-led growth of the export industries.

Conclusion

This review of the profound changes that have taken place in the Swedish labour model since the 1990s has raised a number of questions regarding what this can mean for the overall development of the labour market and the occupational structure. While theories on upgrading and polarisation generally focus on the significance of technological development, the current chapter has mainly focused on changes in labour–capital power resources and institutions. This does not mean that the impact of technology is disregarded – Sweden is one of the top countries in Europe in terms of implementing digital solutions in production systems and society at large (DESI 2018).

However, institutional changes are essential for a nuanced understanding of the direction of occupational change. The theory of routine-biased technological change (RBTC) asserts that digital technology replaces jobs with routine work tasks, reinforce the productivity and demand of jobs with non-routine cognitive tasks while leaving lower-level non-routine service and manual jobs more or less untouched. Consequently, the theory predicts an increased demand for higher-level jobs, while it is less clear why the demand for lower-level non-routine jobs should increase. Two explanations have been put forward. The first is a relative shift in employment towards those jobs when middle-level jobs are declining in numbers (Autor 2015). The second is that increasing inequality leads to an expanding demand for personal services that a well-situated upper-middle class can afford to consume (Mazzolari and Ragusa 2013).

If we place these explanations into the Swedish institutional context, the results of technological change seem less straightforward. Firstly, the industrial relations system should have an important impact on the outcome. The classical Solidaristic Wage Policy squeezed out low-paid employment and benefited employment higher up in the occupational hierarchy. As described, the centralised bargaining system – a cornerstone of the policy – was dissolved in the 1990s, and the new bargaining system that evolved has been portrayed as decentralised and individualised (Baccaro and Howell 2017). If this characterisation of industrial relations in Sweden is correct, it would imply that the mechanism of solidaristic wages in the direction of upgrading is out of order. This would mean that wages further down the occupational hierarchy would have been pressed downward, while the suppressed wages of upper-level occupations would have started to move upward. The outcome would be very similar to the situation in the United States, as shown by Autor and others (2006), and we would expect polarisation to be the inevitable outcome. However, it appears that this is not the case – wage inequality has only marginally increased since the 1990s and Swedish wage equality is among the highest in Europe (Marginson and Dølvik 2020). The outcome of the new wage-setting norm and the coordination of bargaining that has developed seem to reproduce wage solidarity despite the widely used formal individualisation of wages (Ulfsdotter Eriksson *et al*. 2021). This indicates that a mechanism in the direction of upgrading is still functioning in the Swedish labour market.

Other changes point towards growing polarisation, with a parallel expansion of low-paid employment. Firstly, they relate to a changing labour supply caused by large-scale immigration to Sweden in recent decades (see Chapter 6). Immigrants usually have weaker bargaining power in the labour market compared to natives and may therefore be more prepared to accept jobs that natives shun due to working conditions or pay. Secondly, the Swedish welfare state has become less generous and extensive. The social protection systems have embraced a workfare paradigm, whereby a job for any price is better than welfare provisions (Bengtsson and Berglund 2012). These changes also affect workers' bargaining power, especially those with a more marginal position in the labour market. Thus, unemployed and welfare clients are pressed to take on any job available. Thirdly, in recent decades governments have been prepared to fight unemployment by subsidising the low-paid sectors of the economy. As the Swedish industrial relation system counteracts downward pressure on wages, subsidies are a way of decreasing wages indirectly by reducing employer costs. This may increase the demand for low-paid, mainly service-sector jobs.

In addition to these supply factors, we may also add that, according to Erixon and Pontusson (2022), the Swedish economy may have turned in the direction of consumption-led growth since the financial and Euro crises rather than a more balanced growth model. This growth is mainly based on private lending, which constitutes a new source of income for the higher middle classes that may have spurred consumption and expanded employment in the low-paid sector.

Thus, a large supply of immigrants with low bargaining power, a welfare state that has embraced a workfare regime, new sources of income by private lending, and governments prepared to subsidise low-paid employment, all point in the direction of increased employment in low-paid occupations. On the other hand, the industrial relation system still pushes in the direction of upgrading by holding back wage increases in upper-level jobs.

Finally, a factor that is less related to technological development but is highly political, is changes in the significant Swedish public sector. This factor has historically played a huge role in increasing the size of the labour force by facilitating female employment and has been used by governments to reduce unemployment. However, the 1990s crisis became a turning point for the functions of the public sector. For the first time in decades, the number of employed dropped, while a sizeable share of people who had previously been employed in the public sector were now employed by private providers. Moreover, the public sector introduced New Public Management as a new way of governing operations, and new work tasks fell on the public sector as buyers of private services and procurement (see Chapters 3 and 7). However, what this restructuring of the public sector implies for the occupational structure is less clear. Does it lead to stronger polarisation as operations are taken over by private providers, or is upgrading reinforced as new and advanced work tasks are conducted in the public sector? Both outcomes are possible and are something that we will investigate in the present book.

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3 The Transformation of the Occupational Structure in Sweden

Tomas Berglund

Introduction

In the last decades, a rather intense debate has emerged about how the quality of jobs is changing in Western societies. Are mainly high-quality jobs created, requiring higher skills and more education, and offering better pay, while low-quality jobs are replaced? Or are both low- and high-quality jobs increasing at the same time, while middle-level jobs are declining? The first perspective has been called labour market upgrading, and the second is referred to as labour market polarisation. Moreover, the first perspective has a rather optimistic view of where economies are heading; the unleashed forces of capitalism lead to improved jobs, as well as higher incomes and living standards. The second perspective regards the effects of technological changes less positively as polarisation risks reinforcing current inequalities. Thus, there is an urgent need for empirical evidence about where we are heading, with important implications for research, policies, and public debate.

The aim of this chapter is to study whether the occupational structure in Sweden is moving towards upgrading or polarisation. The period in focus is the period from 2000 to 2015, during which time digital devices and ICT were introduced on a large scale. Moreover, in 2000 Sweden had left the great 1990s crisis and the labour market had returned to more normal conditions (see Chapter 2). Several different indicators are used to study the quality of the occupational structure and specific notice is also paid to the significance of the large public sector for the direction of change. I start with a brief discussion of the theoretical reasons that lead researchers to believe that the labour market either upgrades or polarises.

Perspectives of Upgrading and Polarisation

The two main perspectives on changes in the occupational structure are skill-biased technological change (SBTC) and routine-biased technological change (RBTC) (see Chapter 1). SBTC was the dominant perspective up until the 1990s, while RBTC is more recent and is now the dominant view among current economists. The basis for SBTC was observations in the US during the

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1980s showing that the supply, employment rates and wages of highly skilled workers increased simultaneously but declined for low-skilled workers (Katz and Murphy 1992; Berman *et al*. 1998). Thus, ongoing technological changes, particularly the introduction of the personal computer, seemed to be skill-biased with increased productivity of high-skilled workers (Card and DiNardo 2002). Prospects for low-skilled workers were less positive, and structurally induced unemployment was a real risk. However, one problem of SBTC was that it did not specify how digital technology affected skills and work tasks, making the mechanism of the change hidden (Spitz-Oener 2006).

The theory of RBTC focuses more specifically on how work tasks are affected by the introduction of digital devices and claims that those tasks are either replaced or augmented by digital technology (Acemoglu and Autor 2011). The effect of both these mechanisms is increased productivity by decreased labour costs. In the first case, manual workers are replaced with fixed capital, such as automated machinery, but substitution can also include more cognitive work, such as clerks handling data. The denominator of tasks risking substitution is a routine component, making it possible to codify and replace them with automated processes. For non-redundant workers in those processes, the increased productivity after technological investments often implies that wage levels were secured (Autor 2015). Moreover, the remaining work tasks tended to change in a more cognitive direction, such as monitoring automated processes (Acemoglu and Restrepo 2018).

In the second case, digitalisation augments the efficiency of human capital and skills. The skills are of cognitive and abstract nature and the workers are usually highly educated. Digital aiding devices make it possible to perform work tasks more efficiently, in terms of both quantity and quality. This may also change skills that are needed even among highly skilled people when the creative use of digital tools to invent new solutions and products becomes a key competency (Autor 2015: Acemoglu and Restrepo 2018). According to RBTC, firms and organisations demand digitally augmented advanced skills and are prepared to pay high salaries for them.

However, RBTC also emphasises a third kind of work tasks – non-routine manual and social-interactive tasks (Autor *et al*. 2003). According to Autor (2015: 12), manual jobs 'requiring situational adaptability, visual and language recognition, and in-person interactions' are hard to code and substitute with digital technology – at least for the present. Several of those jobs require rather low skill levels with a high supply of workers that can carry them out. Examples of such jobs include serving personnel, health assistants, and childcare workers. Moreover, those jobs are often bound to the domestic market and not easily outsourced abroad. Thus, manual non-routine jobs remain on the labour market and the demand for the produced services is determined by overall consumption (Autor 2015).

Figure 3.1 shows the predicted effects of technological changes on employment of the two perspectives. SBTC predicts monotonous upgrading when employment in occupations requiring low skills is decreasing and high-skilled

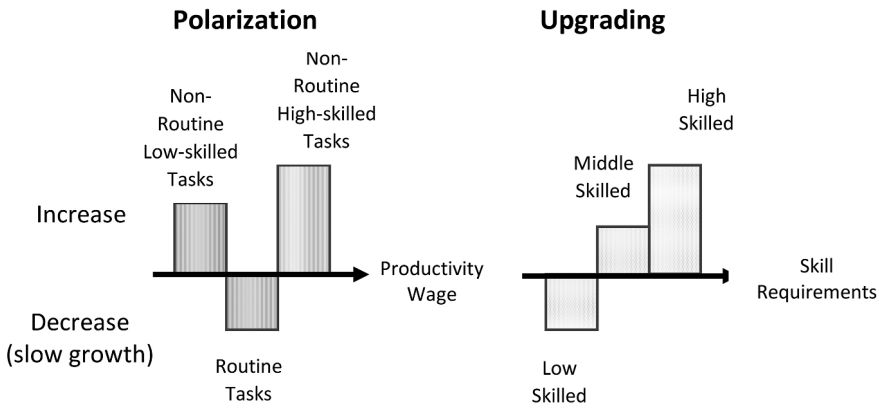

Figure 3.1 Predicted effects of technological change on the occupational structure by RBTC (polarisation) and SBTC (upgrading).

employment is increasing. RBTC predicts polarisation, as employment in middle-occupations dominated by routine tasks is decreasing, while employment in non-routine occupations characterised by both low- and high-skilled tasks is increasing.

The main difference between the two perspectives is found on the x-axis of the diagrams. SBTC focuses on skill requirements, while RBTC focuses on the effect of technology on the productivity of work tasks. Both the productivity of routine tasks and non-routine high-skilled tasks is boosted by the introduction of digital technology, the former by reducing the numbers producing the outcome, and the latter by increasing the added value of the input of human capital. Both of these factors have a positive effect on general wages, albeit with a wage biased towards higher skills. The last category of workers – non-routine low-skilled – is not directly affected by technology, and, following Baumol (1967), therefore have a low potential for productivity gains. The consequence is lower general wage levels than routine workers as a combination of low productivity and skill requirements, the latter increasing the supply of potential workers (Autor 2015).

Wages as an Indicator of Occupational Change

The above reasoning implies that wage levels are strongly related to the direction of occupational change. However, there has been criticism of using wages as an indicator of the impact of technology (see Chapter 1). Instead, direct measures of skill requirements are suggested as a more appropriate indicator of occupational change (Tåhlin 2019). According to this perspective, wages are mainly an effect of individual productivity, determined by ability in combination with job complexity (Tåhlin 2023). The latter is strongly connected to a status or prestige ranking of occupations, constituting a general and legitimate

order of the worth (and wages) of occupations (see Chapter 4). Thus, educational reforms become key policy areas as increasing shares of higher educated people tend to upgrade the occupational structure (see also Acemoglu 2002).

However, this perspective has problems incorporating technological advancements as an additional driver of change. One reason for this is that it disregards the fact that wages, besides human capital, are also related to the productivity-enhancing effect of technological investments (Arai 2003; Carlsson *et al.* 2014; Card *et al.* 2018). Jobs with a weak technological component, combined with low skill requirements (that is, a large supply of workers), tend to have the lowest mean wages in the labour market. Other jobs with rather low skill requirements, but higher productivity due to a more profound technological component (that is, producing higher value per work hour) tend to have higher wages than the first category of jobs, albeit with a larger replacement risk. Lastly, higher-skilled occupations are supplemented by digital technology. The high productivity, combined with short supply, makes wage levels higher than for the two other categories (Autor 2015). Thus, the interesting and novel idea with RBTC is that it is possible to discern three general categories of occupations with different relationships to technology. Here, wages are a key indicator of the effects of technology and which direction labour markets are moving.

However, a large problem in the RBTC theory is the lack of a satisfactory explanation of the expansion of employment in non-routine low-paid, mainly service jobs. Autor (2015) expected that increasing numbers in the most well-paid occupations would increase the demand for personal services (see also Mazzolari and Ragusa 2013). These kinds of jobs generally suffer from the so-called Baumol's cost disease due to low productivity (Baumol 1967). Still, wages in those jobs tend to follow general wage increases in the labour market; otherwise, mobility into the sector would not take place. The result is that profitability in those businesses comes under pressure and employment expansion risks being hampered.

Following Esping-Andersen (1990), Oesch (2015) discussed how this dilemma has been approached. One approach, found in liberal economies like the US, is to put downward pressure on wages in low-productive jobs. Deliberate policies to counteract collective bargaining, or increase job insecurity, could have these effects. Moreover, an increased supply of workers, such as by immigration or declining middle-level jobs, may also have this effect. A second way, found mainly in the Nordic regions, is to expand public employment in areas of great societal importance, such as childcare, elderly-care and healthcare jobs. This solution increased the employment rate (mainly by females entering the labour market), tempered unemployment, and safeguarded wages in line with the rest of the labour market (Esping-Andersen 1990; Berglund *et al.* forthcoming-a). As discussed in Chapter 2, this was the Swedish way until the 1990s. However, this model presupposes that resources from taxation can be extracted from the more productive sectors and well-paid occupations of the economy without hurting investments in technology.

Data

The empirical analyses of this chapter use microdata from the Swedish Labour Force Survey (LFS) in 2000 and 2015. LFS includes detailed information on the adult population and is composed of three separate monthly samples, each containing approximately 20,000 individuals. Those samples also constitute a rotating two-year panel, implying that the respondent is interviewed once a quarter over a two-year period. In total, 141,000 observations were included in 2000 and 175,000 in 2015. To adjust for dependence between observations and to calculate total population figures, weights provided by Statistics Sweden are used in the analyses.

Additional sources used in this chapter are the Swedish Work Environment Survey (SWES) and the Wage Structure Statistics (WSS). SWES is a questionnaire issued by the Swedish Work Environment Authority to track the development in work environments. SWES uses LFS as a sampling frame and between 10,000 and 15,000 employees receive the postal survey. This data set is used to retrieve information about work task characteristics of different occupations. The WSS collects median wages recalculated to full-time monthly equivalences on the three-digit occupational level and includes individuals aged between 18 and 64. The register includes all wage-earners working in the public sector and employed in private companies with 500 employees or more. Information on the rest of the private sector is collected by sampling.

Occupational Change in Sweden

In the discussion of occupational change in Sweden, the debate has revolved around which indicators are best suited to capture the effects of technological change. Figures 3.2–3.5 present the percentage change in the number of people employed between 2000 and 2015 based on either the median wages or skill requirements in different occupations.

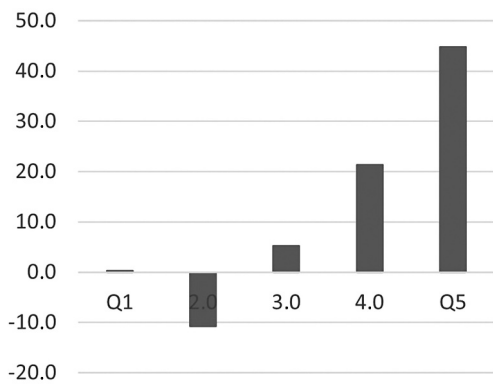

Figure 3.2 Occupational wage quintiles, 2000–2015, based on full-time monthly wages.

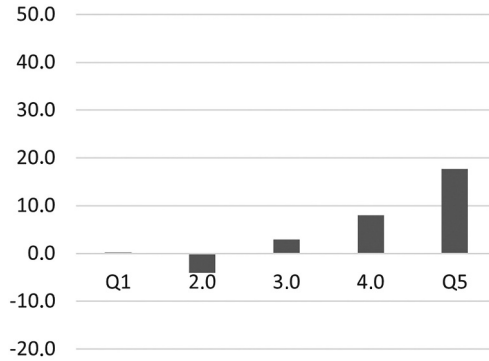

Figure 3.3 Job quintiles, 2008–2015, based on job approach (Åberg 2015).

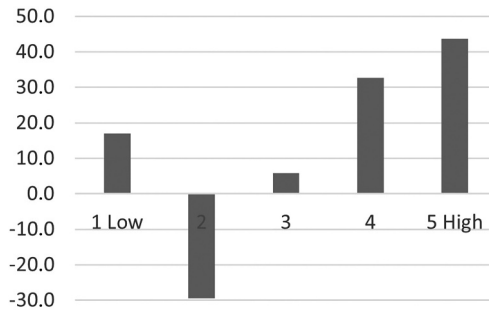

Figure 3.4 Educational requirements 2000–2015, based based on Swedish Level of Living Survey (LNU) definition (Tåhlin 2019).

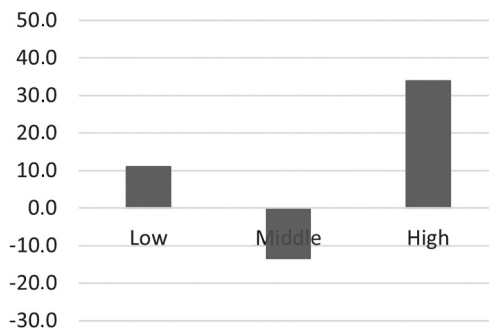

Figure 3.5 Occupational groups, 2000–2015, based on ISCO major groups (OECD).

Figure 3.2 uses full-time median wages within occupations as the indicator (the Swedish version of ISCO-88, called SSYK-96, and at a three-digit level). For the year 2000, all occupations are ranked from the lowest to the highest full-time wages. The distribution of employed in those occupations is then divided into five more or less equal quintiles, each including approximately 20 per cent of the number of people employed. The occupations included within each quintile are then identified, which makes it possible to calculate changes in the number employed in the quintiles over time. However, this way of calculating changes makes sense as long as the ranking of the occupations based on wages is fairly constant over time (cf. Berglund *et al*. 2020).

The overall trend from 2000 to 2015 indicated by this definition is one of upgrading. The growth in the number of people working in the highest-paid occupations (Q5) is very strong, with an increase of 45 per cent. The strong increase also includes Q4 (21%), while the growth of Q3 is more modest. At the lower end, there is a decline in Q2 (–11%), while Q1 is stagnant (0.2%). Thus, the upgrading pattern is not completely unequivocal as the lowest-paid occupations do not decline in terms of the number of employed.

Figure 3.3 focuses on so-called 'jobs' (Wright and Dwyer 2003; Fernández-Macías 2012; Åberg 2015), which is a combination of occupation (three-digit) and industry (The Swedish Industry-Code 2007, at a two-digit level). In each cell of the combination of the two dimensions, the median wage is calculated. Only a short period (2008–2015) is analysed as the classification of industries changed in 2008. However, it prolongs the period studied by Åberg (2015), when strong polarisation was observed in the Swedish labour market. This approach focuses on the number of 'jobs', implying that the same individual could have several jobs. To replicate Åberg's approach as closely as possible, Figure 3.3 also includes individuals' secondary jobs, as those are measured in LFS. Overall, the trend revealed by the job approach is very similar to 3.2 with strong growth in the upper two quintiles and a decline in Q2, while Q1 is stable.

Figure 3.4 is based on a similar definition as Tåhlin (2019), who applied an indicator of educational requirements needed to conduct the work tasks within the occupation. These requirements are measured by a survey question from the Swedish Level of Living Survey (LNU), asking the respondent: How many years of education or training besides primary school does your occupation require (Tåhlin 2019)? The average number of perceived years is then calculated at a two-digit occupational level. Five classes of requirements are defined in the current analysis. The lowest requirements (1) are up to one year of education, 2 is up to two years, 3 is up to three years, 4 is up to five years, and 5 is above five years. The pattern shown resembles Figure 3.2, but indicates stronger polarisation, with a decrease of nearly 30 per cent in Category 2 and an increase of 17 per cent in occupations requiring the lowest skills. This result contradicts strongly with the pattern shown in Tåhlin (2019), where an upgrading trend was found for the period 2000–2010.

The trend in Figure 3.5 using a definition by OECD (2017) resembles what is found in Figure 3.4. Occupations are grouped at the one-digit ISCO level:

low skill (Major Groups 5 and 9), medium skill (4, 7, 8), and high skill (1, 2, 3). With this classification, OECD found an overall strong polarised pattern in the Nordic region during 1995–2015, with a decline of medium-skilled jobs, while both tails of the distribution are increasing. The present analysis of Sweden for the period 2000–2015 supports this finding.

This overview of the Swedish labour market shows very strong growth of employment in highly paid/highly skilled occupations. We will take a closer look at those occupations below. However, the changes in the lower end of the occupational structure are less obvious. On one hand, employment in Wage Quintile 2 (in Figures 3.2–3.3) is clearly declining, while the lowest-paid occupations are stagnant. When measuring changes with skill requirements, both indicators (Figures 3.4–3.5) show a strong increase in the occupations with the lowest requirements.

Wage quintiles and skill requirements

One strand of critique of the wage approach concerns the relationship between wages and skill requirements, as the generally strong relationship is weaker at the lower end of the occupational structure (Tåhlin 2019). Thus, it is argued that several occupations with higher requirements, often found in health and social sectors, are misclassified due to lower wages than jobs with lower skill demands in areas such as manufacturing.

Table 3.1 shows the distribution of skill requirements by wage quintiles. Overall, the relative shares of the three bottom wage quintiles have declined since 2000 (bottom line). Concerning educational requirements, a small increase is found in the category with the lowest skill requirements and a decline in Categories 2 and 3 (last column). However, the category with the lowest skill requirements (up to one year) is a relatively small category on the

Table 3.1 Cross-tabulation of educational requirements by wage quintiles in 2015

	Wage quintiles						
Educational Requirements	Q1	2	3	4	Q5	Share 2015	Percentage points change 2000–2015
1 Low	17.2	55.0	11.0	0.5	0	14.2	0.6
2	16.4	38.0	17.5	4.0	3.8	14.2	–8.3
3	66.4	0.3	35.5	16.4	0.6	22.9	–1.3
4	0	6.6	23.2	52.6	45.6	28.2	4.4
5 High	0	0	12.7	26.3	50.0	20.6	4.6
Total	100	100	100	100	100	100	
Share 2015	19.3	16.1	17.5	22.2	25.0		
Percentage points change 2000–2015	–2.2	–4.1	–1.1	1.7	5.7		

Notes: Shares between categories, and percentage point change within categories. n=3,805,591 Weighted numbers.

Swedish labour market, employing about 14 per cent, while Category 2 has become small over time (22% in 2000).

The correspondence is strong between wage levels and skill requirements in the upper two quintiles. However, the picture is more complicated in the two lower quintiles. In line with Tåhlin's (2019) findings, the number employed in occupations with the lowest skill requirements dominates in Quintile 2, while a high share requiring medium-level skills (3) are employed in Quintile 1. Thus, skill requirements do not correspond to wage levels equally strong in lower-level occupations as higher up in the occupational structure.

To scrutinise this tendency further, Table 3.2 shows shares and percentage change in the largest occupational groups within the occupational wage quintiles. To increase the observations, two years of LFS at each end of the period have been merged; that is, 2000–01 and 2014–15. In Quintile 1 *personal care and related workers* constitute half the share in the quintile and have increased by 2.9 per cent over time. The largest increases are found among *other personal service workers* and *housekeeping and restaurant workers* (33.6 per cent respectively 23.3 per cent), while *client information clerks*, *mail carriers and sorting clerks* and *crop and animal producers* are decreasing.

Table 3.2 Main occupations in quintiles

	Share 2000–01, percent	*Percent change to 2014–15*
Q1		
514 Other Personal Service Workers	3.1	33.6
512 Housekeeping and Restaurant Services Workers	7.8	23.3
912 Helpers and Cleaners	9.4	4.4
513 Personal Care and related Workers	50.2	2.9
913 Helpers in Restaurants	6.6	–1.8
422 Client Information Clerks	6.8	–13.9
415 Mail Carriers and Sorting Clerks	3.4	–44.5
613 Crop and Animal Producers	3.8	–48.0
Q2		
346 Social Work Associate Professionals	3.8	42.4
832 Motor-Vehicle Drivers	13.0	16.5
522 Shop and Stall Sales-persons and Demonstrators	23.7	15.5
421 Cashiers Tellers and Related Clerks	4.7	–21.2
413 Stores and Transport Clerks	10.0	–28.9
419 Other Office Clerks	12.9	–39.0
828 Assemblers	9.6	–42.2
411 Office Secretaries and Data Entry Operators	5.9	–48.8
Q3		
347 Artistic, Entertainment and Sports Associate Professionals	3.9	59.7
833 Agriculture and Other Mobile-Plant Operators	6.3	49.6
233 Primary Education Teaching Professionals	10.1	17.8

(Continued)

Table 3.2 (Continued)

	Share 2000–01, percent	*Percent change to 2014–15*
331 Pre-Primary Education Teaching Associate Professionals	10.7	17.7
713 Building Finishers and Related Trade Workers	13.9	10.8
412 Numerical Clerks	8.0	9.6
723 Machinery Mechanics and Fitters	8.8	-8.8
721 Metal Moulders, Welders, etc.	4.7	–25.6
821 Metal- and Mineral-product Machine Operators	7.3	–27.7
Q4		
343 Administrative Associate Professionals	7.7	75.6
322 Health Associate Professionals (excluding Nursing)	4.6	39.0
245 Writers and Creative or Performing Artists	6.4	25.2
712 Building Frame and Related Trades Workers	11.6	21.6
724 Electrical and Electronic Equipment Mechanics and Fitters	4.5	19.2
323 Nursing Associate Professionals	7.2	1.2
312 Computer Associate Professionals	5.3	–1.0
311 Physical and Engineering Science Technicians	19.2	–4.2
232 Secondary Education Teaching Professionals	7.4	–4.5
Q5		
214 Architects, Engineers and Related Professionals	6.4	76.9
123 Other Specialist Managers	5.6	61.2
122 Productions and Operation Managers	7.3	57.0
241 Business Professionals	13.6	51.3
222 Health Professionals (excluding Nursing)	5.1	47.9
213 Computing Professionals	11.9	46.0
231 College, University and Higher Education Teaching Professionals	3.1	28.3
341 Finance and Sales Associate Professionals	25.1	17.9
131 Managers of Small Enterprises	8.6	–37.6

Notes: Merged figures for 2000–01 and 2014–15.

Quintile 2 is distinguished by decline, particularly among different *clerk* positions and *assemblers*. Increases are found for *social work associates*, *motor-vehicle drivers* and *shop and stall sales-persons*. Quintile 3 saw an increase in the large occupational categories *building finishers and primary*, *primary teachers* and *pre-primary teachers*, while declines are found for *machinery mechanics*, *moulders and welders*, and *machine operators in metal and mineral production*. A small occupational category that has shown strong growth is *artistic, entertainment and sports associate professionals*.

In Quintile 4 and Quintile 5, several occupations grow strongly in the number of employed. In Quintile 4, this includes both *administrative associate professionals* and *health associate professionals*. More contradictory from the perspective of digital technological change is that *computer associate professionals* and *physical and engineering science technicians* declined over the

period. However, similar occupational categories reappear on a higher level in Quintile 5: *Computing professionals* increased by 46 per cent and *architects, engineers and related professionals* increased by 77 per cent. Others with strong growth in Quintile 5 are different *managerial* categories, with the exception of *managers of small enterprises*.

Returning to the discrepancies between the wage quintiles and educational requirements, Table 3.1 indicated that Q1 included occupations with up to three years of post-primary education. In LNU, skill requirements are measured at the two-digit occupational level, while the occupational-wage quintiles are defined at the three-digit level. When checking these discrepancies more closely, the differences are not that severe. The largest occupational category in Q1 at the two-digit level is *personal and protective service workers* (dominated at the three-digit level by *personal care and related workers* – see Table 3.2), which requires 2.2 years of post-primary education. In Q2, *office clerks* is estimated to require two years and *machine operators and assemblers* require 1.5 years of additional education. However, the largest category in Q2 at the two-digit level is *models, salespersons and demonstrators*, which only requires 0.7 years of further education. While the dominant occupation in this category at the three-digit level, *salespersons, etc*., increased (that therefore did not add to any polarisation), the largest occupational groups in the two others (*office clerks* and *assemblers*) decreased (see Table 3.2).

Overall, the requirements in Q1 and Q2 are rather similar, although *social workers* in Q2 may be an example of severe misclassification with much higher requirements than the rest. With this exception, the highest requirement in both Q1 and Q2 is 2.6 years, found for the small category *precision, handicraft, craft printing, etc*. Moreover, the mean level of requirements in Q1 and Q2 (on occupational level) is 1.4 and 1.5 years, respectively. Thus, it seems to be an exaggeration to state that the weak tendency of polarisation in the Swedish labour market is an effect of using wages rather than skill-requirements as an indicator for occupational change.

Job Characteristics of Wage Quintiles

The RBTC hypothesis argues that digitalisation leads to the substitution of both manual and cognitive routine tasks with automated processes, while digital technology supplements non-routine cognitive tasks, making them more efficient and productive (Autor *et al.* 2003; Acemoglu and Autor 2011). Moreover, RBTC asserts that routine tasks are found in the middle of the occupational-wage structure, as they are often better paid than low-skilled service jobs, which are not affected by technology to the same extent, as core tasks such as social interaction with clients or customers are harder to replace.

Table 3.2 gives some indications of the validity of these assumptions. Most occupations in the higher-paid quintiles (Q4 and Q5) require substantial cognitive skills. Some are directly involved in developing digital technology (for

example, *computing professionals*) and others use the technology in production (for example, *technicians*). However, the higher end also expands in managerial and administrative occupations, which are not directly related to technological transformation. Instead, new complexities seem to have evolved in governing business and organisations; for example, in relation to new business models and globalisation (Eliasson *et al*. 2022).

In the other quintiles, different occupations show both declines and increases. The decline is strongest in the occupations constituting Q2 (See Figure 3.2). Those include several categories of *clerks* (Table 3.2) – prime examples of occupations characterised by routine-cognitive tasks – and of *assemblers* – which perform many standardised manual work tasks. Occupations not decreasing in Q2 are social and interactive, such as *shop salespersons*. Similar patterns are also found in Q1, where clerks decline, while relatively low-skilled/low-paid service jobs remain or even increase.

However, some researchers have questioned the general starting point of RBTC. In a European study, Fernández-Macías and Hurley (2017) used direct measures of work tasks, particularly if occupations include a routine component. While the authors did find a clear negative correlation between the routine content of jobs and job creation, they were not able to verify that the routine jobs are placed in the middle of the occupational wage structure. Consequently, the routine content of jobs is a bad predictor of job change in Europe, while both cognitive and social job content are better predictors.

Table 3.3 presents indicators of job content within the occupational wage quintiles. They are calculated with individual-level data from SWES for 2001.

Table 3.3 Average work facets in 2001 for individuals in occupational quintiles

	Repetitive[a]	*Monotonous*[b]	*Problem-solving*[a]	*Decide when to conduct work tasks*[c]	*Influence on the disposition of the workday*[c]	*Work with customers, clients etc.*[a]
Q1	2.61	1.67	1.58	1.21	1.77	3.38
Q2	2.96	1.85	1.46	1.32	1.61	2.88
Q3	2.17	1.50	1,92	1.46	1.87	2.53
Q4	1.59	1.12	2.61	1.60	2.02	3.03
Q5	1.23	1.01	3.16	1.95	2.23	2.94
Tot	2.10	1.42	2.16	1.50	1.90	2.97
(n)	(9,492)	(9,536)	(9,502)	(9,556)	(9,506)	(9,491)

Source: The Swedish Work Environment Survey.

Notes:

[a] Responses: 0 No, never – 5 Almost always.
[b] Responses: 0 Various – 4 Monotonous.
[c] Responses: 0 Never – 3 Always.

The SWES is mainly used to measure different work environment risks and is not specifically adapted to study job content. However, a few indicators do have some validity for the present purposes.

The two first variables in Table 3.3 are subjective indicators of routine-based work tasks; the first asks whether the individual repeats the same work moment several times in an hour, while the second asks whether the job is monotonous or various. Individuals in higher-paid occupations clearly have less routine work tasks than workers in Q1 and Q2. However, the pattern is not fully linear, as Q1 has less frequent routine work tasks than Q2. The third indicator measures the cognitive content and asks whether the worker uses part of the working time to understand or solve demanding problems. Again, the pattern is rather linear, with a small discrepancy in the lower end with a tendency of higher problem-solving in Q1 than Q2.

Two variables measure different aspects of discretion – to decide when to conduct tasks and disposition over the working day. Workers in Q1 have more discretion over the working day than in Q2. This is in line with the two first measures, as more standardised work tasks decrease influence over the disposition of the workday. However, Q1 seems more bounded by time than Q2.

Finally, the last indicator measures social interactions with clients, patients, and customers, and shows the lowest involvement in the middle quintile, and the highest in Q1. Consequently, the work tasks of the latter workers involve people other than their colleagues, which, of course, is typical for many service jobs included in the quintile; for example, the large share of care workers.

In sum, full-time wages are a good proxy to study the last few decades' effects of technological change on the occupational distribution. The decline in Q2 is largely an effect of the decrease of clerks and assemblers, the former first with cognitive routine work tasks and the latter with manual routine work tasks. Jobs of a socially interactive nature are increasing, and several of them require relatively low skills. The same process takes place in Q1, although social interactive jobs in the health sector dominate in the quintile. The two upper quintiles have mainly followed expectations, with increases in computer specialists and technicians. However, there are also large increases in managerial and administrative positions. These jobs are not related in a straightforward way to technological changes. Instead, restructuring processes in businesses and organisations during the last decades may be an explanation. Below, the focus is on restructurings in the large Swedish public sector.

Organisational Change in the Public Sector and Polarisation

The public sector in Sweden is internationally large and includes about 30 per cent of all people in employment, and consequently has a strong impact on the overall labour market. Like the rest of the economy, the public sector is exposed to digitalisation and technological change. However, the dominant work tasks in the sector are interpersonal and hard to replace with technical devices. Consequently, those jobs are in industries exposed to Baumol's cost disease

(Baumol 1967). As the financing of public jobs comes from taxes, the contraction or expansion of the sector is governed by political decisions.

In the 1960s, the Swedish public sector started to grow rapidly, when the public child and elderly care and the health sector expanded. In 1970, the sector employed 24 per cent of the working population and this figure reached 37 per cent by the end of the 1980s. However, the economic crisis of the 1990s saw public employment contract to 32 per cent by 2000, before stabilising at around 29 per cent. Thus, public employment has an important function in the Swedish labour market, especially for women, who constitute the grand majority in the sector (72 per cent in 2015).

Since the 1990s, three trends have impacted the public sector (Berglund *et al*. forthcoming-a). The first was the 1990s downsizing of the sector with the intent to reduce public spending (see Chapter 2). The second was the introduction of new ways of governing, especially New Public Management (NPM), with a focus on strict budget controls and efforts to create internal markets (Hall 2013). The third was the partial privatisation of the public sector. However, private providers are still publicly funded and the public sector has found an additional role in the procurements of private operators (Hartman 2011).

Figure 3.6 shows changes in the number of private and public employed (excluding self-employed). The overall pattern is similar to Figure 3.2 (adding the numbers in the private and public sectors). Viewed separately, however, changes in the private sector clearly move in the direction of polarisation. Q1 increased by 34 per cent, while Q2 declined by 8 per cent. Q3 increased only slightly (4 per cent), compared to strong increases in both Q4 (26 per cent) and Q5 (46 per cent). However, the two lowest-paid quintiles are strongly structured by sector. In Q1, only 38 per cent were employed in the private sector in

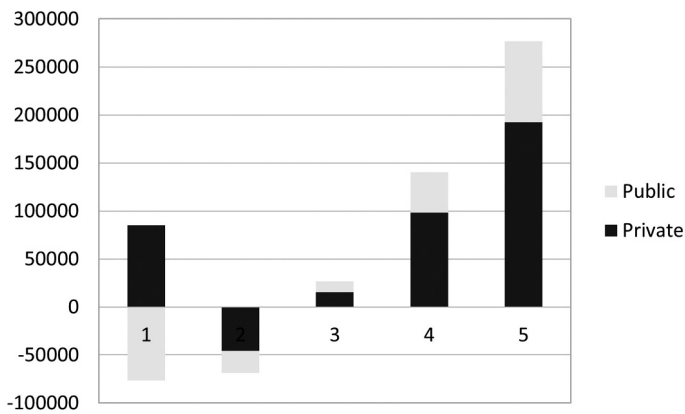

Figure 3.6 Changes in the number of employed in occupational-wage quintiles in the private and public sectors, between 2000 and 2015. Persons in dependent employment, aged 16–64. LFS, weighted data.

2000 (and 62 per cent in the public), while 87 per cent were privately employed in Q2. In 2015, the share of private employed in Q1 had increased to 50 per cent, while in Q2 the difference remained.

The public sector is changing in the direction of upgrading. Q1 decreased by 19 per cent and Q2 by 28 per cent from 2000 to 2015. The latter has only a small share of publicly employed people, which even has decreased from 13 to 11 per cent. In the upper quintiles, there were strong increases of 17 per cent (Q4) and 61 per cent (Q5). While the growth rate in the private sector outperformed the public sector in Q4, it was the other way around in Q5, with very strong growth of well-paid positions.

These patterns are further studied in Table 3.4, which shows occupational changes within Q1 and Q5 separated by sector. To increase the number of cases three years around 2000 and at the end of the time-series are merged defining two periods, and comparisons are based on averages for the two periods. The growth of Quintile 1 in the private sector consists of increasing numbers in occupational categories in line with RBTC. For example, service workers in restaurants and housekeeping have become more frequent, as have cleaners. The largest increase (63,000) is found among *personal care workers*, which, in the latter period (2013–15), is the dominant Q1 occupational category in the private sector, including 30 per cent of employed people. Conspicuously, the same occupational category in the public sector decreased by about 50,000 employees. Similar declines in the public sector and increases in the private sector were also found for other major occupational categories.

In Quintile 5, there are overall increases in both the private and public sectors. In the public sector, highly qualified professional groups are growing, such as *health professionals* (for example, medical doctors) and university teachers. However, the strongest increases are found among managerial and administrative categories. *Production managers*, *administrative professionals* and *legal professionals* each increased by about 80 per cent, and *business professionals* increased by close to 70 per cent. The share of *health professionals* decreased from 18.3 per cent of all employed in the first period to 15.9 per cent in the latter, while *production and operation managers* increased to 15.3 per cent. Although the patterns are similar in the private sector, they are not as strong as in the public sector. The increases in managerial and administrative categories are just below 60 per cent in the number of employed, while the largest increases are found among architects and engineers, with about 85 per cent.

These changes indicate a transformation of the public sector impacting the private sector. Although no data are available to confirm the exact exchanges in Q1, it is reasonable to assume that the different patterns are an effect of the combined mechanisms of privatisations and public procurement of welfare services in Sweden. Jobs have moved from the public sector when private providers have been allowed to expand and operate schools, health and elderly care centres. However, the overall net effect of these exchanges, combined with other occupational changes more directly in line with RBTC (for example, the

Table 3.4 Change in major occupational categories (three-digit) in private and public sectors, 1999–2001 and 2013–2015

Private	*Percentage share 1999–2001*	*Percentage change*	*Number change*	*Public*	*Percentage share 1999–2001*	*Percentage change*	*Number change*
Quintile 1				**Quintile 1**			
513 Personal Care and Related Workers	15.2	162.1	62,800	513 Personal Care and Related Workers	80.1	–15.3	–50,100
912 Helpers and Cleaners	17.3	25.0	11,000	912 Helpers and Cleaners	5.9	–44.7	–10,800
512 Housekeeping and Restaurant Services Workers	14.2	38.0	13,700	512 Housekeeping and Restaurant Services Workers	3.9	–18.5	–2,900
913 Helpers in Restaurants	10.2	28.7	7,400	913 Helpers in Restaurants	5.0	–41.3	–8,400
422 Client Information Clerks	16.0	–14.3	–5,800	422 Client Information Clerks	1.8	–19.0	–1,300
Quintile 5				**Quintile 5**			
341 Finance and Sales Associate Professionals	34.0	19.5	27,900	222 Health Professionals (excluding Nursing)	18.3	34.0	8,500
213 Computing Professionals	14.6	49.4	30,400	231 College. University and Higher Education Teaching Professionals	13.4	23.4	4,300
241 Business Professionals	13.9	55.1	32,200	122 Productions and Operation Managers	13.1	80.0	14,400
123 Other Specialist Managers	7.9	59.3	19,800	247 Public Service Administrative Professionals	11.6	81.8	13,000

(Continued)

Table 3.4 (Continued)

Private	*Percentage share 1999–2001*	*Percentage change*	*Number change*	*Public*	*Percentage share 1999–2001*	*Percentage change*	*Number change*
214 Architects, Engineers and related Professionals	7.8	85.1	27,900	241 Business Professionals	9.8	69.6	9,300
122 Productions and Operation Managers	6.3	59.0	15,600	242 Legal Professionals	4.4	81.3	4,900

Notes: Share within quintile in the first period, percentage change and change in numbers between the two periods. Figures are based on yearly averages within both periods. LFS, weighted figures.

decrease of clerk positions and increase of restaurant personnel), is the stability of Q1 over time. On the other hand, there are strong indications that the changes in the organisation of welfare have effects higher up in the occupational hierarchy of the public sector as strong increases in managerial and administrative jobs are visible. Procurements of private providers and reorganisations of the sector in the direction of NPM may lead to jobs that have the purpose of operating, controlling and coordinating these tasks, and the employment of people with necessary skills, such as legal professionals, become prioritised. However, this upgrading is not directly related to technological change and digitalisation. Rather, the driving forces are new management ideas, ideological reorientations in views of the state, as well as political priorities of restricting public spending (see Chapter 2).

Social Categories and Employment Conditions in Occupational Quintiles

The distribution of individuals in the occupational structure is affected not only by educational achievements but also by social biases, which implies differing risks of working in different jobs. Moreover, besides pay, those jobs may also vary regarding other employment conditions, such as job security.

Table 3.5 shows the placement of females, young and old people, people born outside Sweden, and tertiary-educated people in the various quintiles in 2000 and 2015. The occupational wage structure appears to be strongly gender-biased. Females dominate in the lowest-paid quintile and are a minority higher up in the distribution. Over time, however, the distribution moves in the direction of higher gender equality as the share of women increases in the three upper quintiles and declines in the lowest-paid quintile. The exception is Q2, which moves away from a 50/50 distribution with an increasing male share. The strong gender bias in Q1 is explained by the female-dominated public sector (Berglund *et al*. forthcoming-a). However, the decline of Q1 in the public sector,

Table 3.5 Percentage share of social categories in occupational wage quintiles

		Wage quintiles				
		Q1	*2*	*3*	*4*	*Q5*
Female	2000	77.7	49.1	35.9	38.3	35.1
	2015	71.6	44.8	40.3	43.7	41.3
15–24 years	2000	16.6	16.9	9.4	5.3	3.2
	2015	18.7	20.4	10.9	5.9	3.2
55–64 years	2000	15.4	15.3	14.4	17.4	15.8
	2015	19.5	16.1	19.3	19.7	16.8
Foreign-Born	2000	14.0	11.6	9.7	7.2	7.9
	2015	29.5	19.9	15.1	12.6	15.1
Tertiary-Educated	2000	8.8	11.3	28.4	52.1	58.2
	2015	20.6	23.1	40.1	62.1	72.8

and the parallel increase in the private sector, entail increased employment of males. Moreover, the introduction of NPM in the public sector also seems to offer many opportunities for women of employment in Q5 (see also Chapter 4).

Younger workers tend to be employed more in the two lowest-paid quintiles than higher up in the occupational structure, a pattern that was slightly reinforced during the period. The oldest workers are more evenly represented across the quintiles and have increased their shares over time. Foreign-born individuals are increasingly present in the lowest-paid quintile over time (from 14% to nearly 30%). The lion's share of the people in this group come from non-European countries (see Berglund *et al.* forthcoming-b). Many immigrants encounter the low-paid sector in an attempt to get a foothold on the Swedish labour market (see also Chapter 6). Overall, however, foreign-born have also increased in the other quintiles, especially in the highest-paid ones. Finally, tertiary educated is the clear and increasing majority in Q5, though they are overall more present in the quintiles in 2015.

Table 3.6 presents some indications of employment conditions in the different quintiles. Temporary and part-time employment is more widespread in the bottom quintiles. Especially, temporary contracts are common in Q1, with an increasing share over time. Moreover, part-time employment is more common in Q1 and Q2. In 2015, approximately 43 per cent were part-timers in Quintile 1. Part-time and temporary employment are both usually regarded as non-standard employment. The combination of low wages, few working hours, and job insecurity in the lowest-paid quintiles may reduce those workers' earnings (see Chapter 11). Moreover, the protective power of union membership also tends to decline. The figures in 2000 were high overall, with close to 80 per cent unionised in Q1. However, in 2015, the lowest unionisation rates were found in the two lowest-paid quintiles. Also, although Q3 and Q4 had declining figures, the unionisation rate was still over 70 per cent. On the other hand, a slight increase was found in Q5, leading to a higher unionisation rate than in the two lowest-paid quintiles. Thus, the protection of workers in low-paid positions has been weakened (see also Chapter 10).

Table 3.6 Employment conditions within occupational-wage quintiles (percentage)

		Wage quintiles				
		Q1	*2*	*3*	*4*	*Q5*
Temporary	2000	23.3	17.3	11.7	9.2	7.0
	2015	27.9	21.2	12.9	9.4	7.8
Part-time 1–19 hours	2000	9.5	8.3	3.3	2.4	2.0
	2015	10.2	10.7	4.2	2.6	2.2
Part-time 20–34 hours	2000	36.4	19.2	11.8	13.7	7.0
	2015	32.9	21.2	14.4	13.8	8.3
Unionised	2000	79.8	73.7	85.5	84.4	69.9
	2015	60.3	56.0	71.5	76.9	70.5

Concluding Remarks

This chapter has shown that employment in the best-paid occupational quintiles in the Swedish labour market increased strongly between 2000 and 2015. While the second-lowest quintile decreases, employment in the lowest-paid quintile is stagnant (albeit with decreasing relative size). This pattern leaves us undecided regarding whether changes should unequivocally be described as upgrading, in line with SBTC, or if polarisation, predicted by RBTC, tends to be visible in the Swedish labour market. However, the signs of polarisation become stronger considering also skill requirements of occupations.

In line with RBTC, occupations that mainly involve routine work tasks are decreasing (such as assemblers and clerk jobs), while manual service jobs (such as personal services and restaurant workers) are increasing. Moreover, the typical work tasks in the quintiles also show that the second-lowest quintile includes more repetitive and monotonous tasks than the lowest-paid quintile, which instead consists of social interactive work. Both quintiles also involve less problem-solving compared to higher-up in the occupational structure.

Overall, we can conclude that the mechanisms of RBTC are clearly visible in the replacement of routine jobs and the increase of high-skilled non-routine occupations, shifting employment either upwards or downwards the occupational structure. While educational expansion has certainly added to the upward trend in the occupational structure, the question is why the low-paid sector has not expanded more strongly on the Swedish labour market.

While it is not possible to test the exact mechanisms of counteracting expansion here, there are several reasonable explanations. Firstly, the Swedish labour market model still prevents accelerating wage differences between occupations (Marginson and Dølvik 2020), which may reduce the demand for personal services (see Mazzolari and Ragusa 2013). In parallel, the constrained wages in the upper end may also boost the demand for high-skilled workers. Secondly, the 'low-inflation regime' introduced in the 1990s, which prioritised inflation rather than unemployment, has cemented unemployment levels at around 7 per cent (see Chapter 2). Thus, the price of not accepting increased inequalities and expanding low-paid employment seems to be sticky unemployment. Thirdly, the expansion of public employment has stalled since the 1990s, at least in the lower-paid segments, and Sweden has turned away from the previous formula of expanding service employment without increasing inequality (Oesch 2015). For example, *personal care workers* (such as assistant nurses and child-care workers) only increased by 2.9 per cent during these 15 years, while the overall population increased by 10 per cent.

However, the public sector in Sweden is clearly upgrading, which is an effect of at least two processes. On one hand, privatisations have moved low-skilled people into the private sector, which has contributed to the polarisation of that sector. On the other hand, public sector employment in management and administrative occupations has increased strongly, adding to the general upgrading of the labour market. Exactly why those positions

expand in the public sector has not been analysed, but work tasks related to NPM and public procurement of private providers are possible explanations. Moreover, these processes have been beneficial for women, who have occupied many of those positions. The male labour market position has moved in the direction of polarisation (see also Chapter 4).

Employment conditions at the lower end of the occupational structure are quite precarious, with high incidences of temporary employment and part-time work. Moreover, precarious working conditions have increased over time, particularly temporary employment. In addition, the unionisation rate has decreased considerably among low-paid workers. The social categories mainly exposed poor employment conditions are females and foreign-born, but while the share of females decreased in the lowest-paid quintile, the share of foreign-born increased.

Finally, the study has revealed complex tendencies in the Swedish labour market, which is clearly not only an effect of technological change but also of the unique Swedish institutional framework. A strong increase in high-quality jobs takes place, though, behind the promises of a high-road labour market lurk polarisation. As long as the unions can prevent growing wage inequalities, the risk of polarisation may be counteracted. However, the price of low inequality is the risk of continued high unemployment. One way to escape this dilemma is to return to a more positive view of public employment. This road seems still to be politically quite closed.

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4 Occupational Prestige and Gendered Polarisation

Ylva Ulfsdotter Eriksson and Erica Nordlander

Introduction

Occupational prestige has received considerable sociological attention and its stability over time and space is both intriguing and puzzling (Zhou 2005). Therefore, occupational prestige has been called 'the only universal sociologists have ever discovered' (Hout and DiPrete 2006: 3). This epithet has its foundation in Treiman's seminal analysis of some 85 occupational prestige studies, conducted in 60 countries from the mid-1940s to mid-1970s, which resulted in the construction of the *Standard International Occupational Prestige Scale* (SIOPS). The first thorough prestige study in Sweden (2002) also displayed a high correlation with the SIOPS (Svensson and Ulfsdotter Eriksson 2008; Svensson and Eriksson 2009). In 2018, the Swedish study was replicated, and the results constitute parts of the data analysed in this chapter. But why study occupational prestige again when it has proven so stable?

Firstly, occupations are at the core of the restructuring of labour markets. It is occupations that, because of increased technologisation, run the risk of being fundamentally changed or even eliminated. Occupations are complex compounded objects, characterised by a high degree of variance in terms of task compositions, skill requirements and wages. Occupations are ascribed different levels of prestige, and the ways that occupations are perceived and valued in society have historically been proven to be very stable (Treiman 1977). However, it is likely that the transformations of the labour market, as described in the literature and reported on in Chapters 1–3, have affected prestige evaluations, not only because of changes in the occupational structure but also because of changes in what kinds of knowledge and skills that are considered desirable and valuable (Jensen and Prieur 2016; Ulfsdotter Eriksson *et al*. 2021).

Secondly, occupations constitute a main principle to categorise and position individuals and are one of the most essential components of social stratification (Ganzeboom and Treiman 1996). When studying polarisation, occupations are naturally in focus, as occupations group the population into clusters; and, by focusing on prestige, instead of wages or qualifications (e.g., Åberg 2015; Tåhlin 2019), prestige has the advantage of being a compound concept that includes both financial and symbolic rewards (Reiss 1961; cf. Oesch and Piccitto 2019).

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A previous study also showed tendencies of polarisation in men's employment but upgrading in women's, which may be explained by the predominance of women in higher education (Ulfsdotter Eriksson *et al*. 2022).

Thirdly, an increase of women in higher-prestige occupations not only challenges the predominance of men in 'the best occupations' (Charles and Grusky 2005: 8), but may also affect prestige, even though research on the relationship between gender and occupational prestige is inconclusive (e.g., England 1979; Jacobs and Powell 1985; Ulfsdotter Eriksson 2006; Magnusson 2009).

Finally, even though occupational prestige is assumed to be 'universal', a discrepancy in perceptions regarding what prestige an occupation *has* and *ought to have* has been observed (Ulfsdotter Eriksson and Nordlander 2023), which may indicate that there is room for some movement in occupational prestige orders. The occupations that ought to have higher prestige are those conducted within the welfare system and primarily by women.

In light of these given changes, this chapter aims *to explore if and how labour market transformation has affected occupational prestige in Sweden*. We start the analysis by exploring how employed women and men are distributed across the prestige hierarchy and how the distribution has changed over time (1997–2015). Thereafter, we study whether occupational prestige scores have changed from 2002 to 2018, and in what ways some core occupational characteristics (wages, skill level, gender composition, type of task and the risk of extermination) affect the occupational prestige scores and whether the impact of these characteristics has changed.

As this volume aims to increase our understanding of transformations in the labour market by scrutinising polarisation, an underlying purpose of this chapter is to look for such tendencies based on occupational prestige. In line with the different forms of polarisation depicted in Chapter 1, *value polarisation* is explored in the analysis of how the proportion of employees in different status groups has changed over time. According to Reckwitz (2021), the expansion of higher education, and the academisation of society, have led to a devaluation of low-skilled and non-academic occupations, such tendencies would tie in with what Duclos and Taptué (2015) called bi-polarisation with a greater and more salient gap between high- and low-prestige occupations, and a prestige rank order with a stretched range. Reckwitz (2021) also claimed that since women are the drivers of the expansion of higher education, they have benefitted from the restructuring of the labour market. Different patterns for women and men, and female and male gender-coded occupations, may indicate *social polarisation* by gender. By exploring how changes in gender composition over time have impacted prestige scores, the analysis in this chapter also contributes to the intriguing question of whether the share of women impacts occupational prestige.

Occupations and Prestige in a Transforming Labour Market

Research on occupational prestige has long been of great sociological interest within social mobility research, with the National Opinion Research Center

(NORC) study from 1947 being the most influential (Reiss 1961). That study, from the United States, investigated how respondents rated the general position of occupations on a scale from 1 (excellent standing) to 5 (poor standing), and what occupational characteristics, or criteria, raters used to evaluate the prestige. The methods used in the NORC study have become the primary standard for investigating occupational prestige (Nakao and Treas 1990), and survey-based studies, in which occupations are assessed in terms of status or prestige, have since formed the foundation of research on prestige hierarchies (Treiman 1977; Wegener 1992).

In the period between the end of the Second World War and the beginning of the 1970s, some 85 prestige studies were conducted in 60 countries (Treiman 1977). Based on a comparison of most of those studies, Treiman (1977: 59) concluded that occupational prestige is perceived in roughly the same way across time, space and by 'people in all walks of life'. Based on these results, the Standard International Occupational Prestige Scale (SIOPS) was created. Over the years, research has confirmed the stability of occupational prestige (e.g., Carlsson 1958; Pohoski *et al*. 1976; Nakao and Treas 1990, 1994; Svensson and Ulfsdotter Eriksson 2008; Svensson and Ulfsdotter Eriksson 2009).

In a comparison between occupational prestige studies in six countries, Inkeles and Rossi (1956) reported a mean correlation of r = 0.91. Hodge *et al*. (1964: 302) found that 'changes were minor relative to the overall stability' in a comparison between NORC 1947 and NORC 1963 (r = 0.99). In a comparison of prestige scales in 23 societies, the correlation was somewhat lower, at 0.83, although such a figure may still be considered very high (Hodge *et al*. 1966). The stability in prestige was also evidenced by Nakao and Treas (1994), who compared the 1964 NORC with the 1989 NORC and reached a correlation of 0.97. The Swedish study from 2002 also correlated highly with Nakao and Treas (1994), with a Pearson's r of 0.86 (Svensson and Ulfsdotter Eriksson 2009). A tentative comparison between the Swedish study from 2002 and a Swedish pilot study from 1955 (Carlsson 1958) showed greater discrepancies and reported a correlation of only 0.69, which in this context is regarded as low.

Despite this evidenced stability over time and between countries, some studies have pointed towards changes. Nakao and Treas (1994: 36) showed a tendency for 'lower-status occupations to gain prestige scores vis-à-vis higher status ones' where the lowest-rated occupations increased by about five points and an increase in the overall mean prestige from 45.2 to 47.5. This result speaks against increased polarisation in prestige as the prestige range tends to be evened out.

The high stability of occupational prestige is often explained by collective conscience, in that people share fundamental values, which is further explored in Chapter 5. The basis for shared values is found in the division of labour in modern industrialised societies (Treiman 1977). All complex societies share some vital functions, which leads to similar occupational structures. This substantiates the social stratification and differences in access to resources, such as knowledge and skills, financial resources, and authority and control.

The hierarchisation of occupations underpins differences in privileges and rewards, one of which is prestige (in terms of esteem and recognition). Occupations with advantageous positions have great potential to continuously maximise their rewards (Davis and Moore 1945).

As discussed in previous chapters, the occupational job structure in industrialised countries is changing due to technological advancements (Brynjolfsson and McAfee 2014). Western labour markets are also subjected to a sexual division of labour, especially the Swedish one. It is commonly stated that men have the most prestigious and highly paid occupations (Nermo 1999; Charles and Grusky 2005). However, sex segregation in Sweden is decreasing (Halldén 2014) and changing gender patterns may have affected how occupations are perceived in terms of prestige.

The educational expansion has unmistakably been beneficial for women, who have increased in numbers in male-dominated high-prestige occupations (Tåhlin 2019; Ulfsdotter Eriksson *et al*. 2022). It is sometimes argued that the shares of women in an occupation harm its prestige, even though the research does not support this (e.g., England 1979; Magnusson 2009). In line with Treiman (1977), England (1979) argued that prestige is more strongly related to the complexity of tasks and the amount of education required than to the sex composition in occupations.

In addition, the Fourth Industrial Revolution places higher demands on intellectual and cognitive abilities (Jensen and Prieur 2016; Reckwitz 2021), as much work is related to abstract knowledge systems. Contemporary working life also demands emotional and relational competencies, especially in human-related occupations (Illouz 2007; Ulfsdotter Eriksson *et al*. 2021), and increased demands on abilities traditionally associated with femininity may contribute to an upgrading of female-dominated occupations, in which such abilities are traded.

Methods

This chapter presents analyses from two different sets of data to (1) describe the allocation of employment within the occupational prestige hierarchy and (2) explore whether changes in the labour market have affected the occupational prestige scores.

In the first analysis, the Swedish Labour Force Survey (LFS) was used to analyse how employment in prestige groups developed between 1997 and 2015 (for details, see Chapter 3). Occupational prestige, indicated by the SIOPS and ranging from 13 to 78, was imputed to each individual's occupation at the four-digit level (Ganzeboom and Treiman 2010). Based on the 1997 data, the occupational prestige hierarchy was then divided into five groups, from the lowest prestige group (1) to the highest (5). The cut-off points of the 1997 groups were used to recalculate the prestige groups in 2015 to enable analyses of changes in the number of employees in occupations with different prestige.

In the second set of analyses, we used data from two survey studies on 'Perceptions of occupational prestige' administered by Statistics Sweden on behalf of two research projects. The 2002 study was conducted as a postal survey which resulted in 1819 unique answers (60.6 per cent response rate. For details, see Svensson and Ulfsdotter Eriksson 2008, 2009). The 2018 survey was designed as a replication. It was conducted as both a web and a postal survey and resulted in a total of 1653 unique answers (23.6 per cent response rate). There were four different versions of the questionnaire, in which respondents rated 40 (2002) or 30 (2018) occupations. In total, prestige evaluations of 100 (2002) and 120 (2018) occupations were collected, of which 91 occupations were selected for the comparative study presented in this chapter (see also Svensson and Ulfsdotter Eriksson 2009; Ulfsdotter Eriksson and Nordlander 2023).

Both surveys had a random selection of respondents, which was administered by Statistics Sweden. Responses of both years were especially low among people born outside the Nordic countries, low-income and low-skilled people. To adjust for this in the analysis, the data were weighted with a vector factoring in age, gender, educational level, nationality and civil status. We consider the data to be reliable, due to the fact that the analysis focused on average means in the prestige scores, rather than on group differences in perceptions, and also due to a high correlation between the 2002 and 2018 surveys.

The analyses draw on the first question in the questionnaire, where respondents were asked to judge occupational prestige on a selection of occupations: '*Here is a list of occupations. Indicate for each profession how it is valued in society in terms of status*.' Respondents rated prestige on a scale from 1 to 9. For the analysis presented in this chapter, we started by calculating the mean values for the 91 occupations. Thereafter, prestige scores (PS) were calculated by PS= $\bar{x}$ (12.5–1), following Nakao and Treas (1990). To explore changes and stability, we calculated differences in prestige scores and explored correlations between 2002 and 2018 (Pearson's r). In the second step of the analysis, we explored the ways in which some occupational characteristics impact prestige and if this has changed. OLS regressions in four (2002) and five (2018) models were conducted. The dependent variable was prestige scores from 2002 and 2018. The independent occupational characteristics – *wage, education, type of work, high risk of disappearing*, and *gender composition* – are described below.

Employment in the Occupational Prestige Hierarchy

The analysis of how the job structure has changed regarding prestige begins with an initial exploration of value polarisation, that is, of how employment is allocated to different prestige groups, as well as how this has changed over time. The SIOPS scale was divided into five prestige groups. Group 1, SIOPS 13–25, represents the lowest-prestige occupations, such as cleaning personnel, caretakers, and janitors, and, as shown in Figure 4.1, the employment share within this prestige group has been rather stable over time, even though it decreased by 1.7 percentage points from 1997 to 2015. Group 2 (SIOPS 26–38) also represents

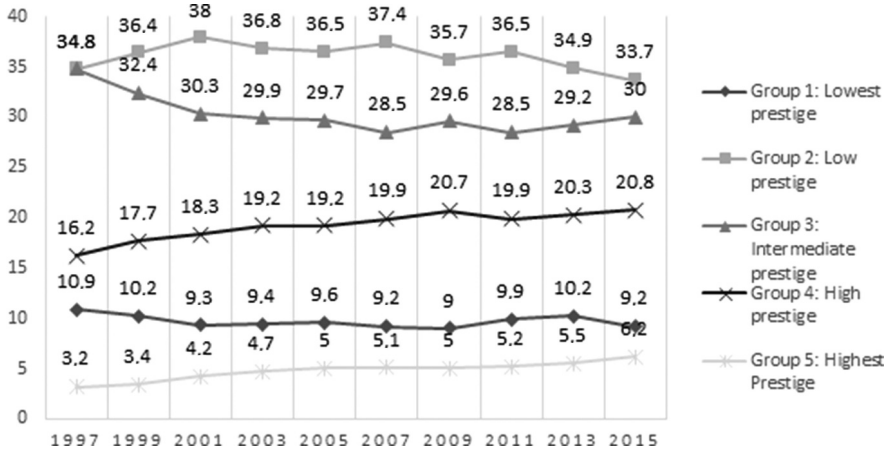

Figure 4.1 The allocation of employment into prestige groups (percentage). Swedish LFS.

low-prestige occupations and is comprised of occupations like drivers and carpenters. This group also shows stable patterns, with a decrease of only 1.1 percentage points. The medium-prestige Group 3 (SIOPS 39–51), with occupations like machine operators and office clerks, shows a larger decrease, with a 3.4 percentage points change. The two highest-prestige groups (Group 4: SIOPS 52–64 and 5: SIOPS 65–78) display upward trends, with increases in employment corresponding to 4.6 and 3 percentage points, respectively. In these groups, we find occupations such as social work professionals, computer assistants and nurses in Group 4, and civil engineers, physicians and university teachers in Group 5. Overall, these data show upgrading tendencies as employment shares increase in the highest-prestige groups and decrease in the lower strata.

Against the background of the vast gender-segregated labour market in Sweden and in line with 'vertical inequality and male primacy' (Charles and Grusky 2005: 21), it is interesting to further explore whether these changes look the same for women and men.

As shown in Figure 4.2, over time women and men have had similar but also slightly different movements in the occupational prestige hierarchy. While more women left the lower-prestige Groups 1 and 2 (–4.5 and –1.3 points, respectively), the proportion of men increased slightly in the lowest-prestige Group 1 (+1.1 points) and decreased by about 0.5 percentage points in Group 2. Both genders decreased in the medium-prestige Group 3 (Women: –3.9; Men: –6) and increased in the two highest-prestige groups. In the highest-prestige Group 5, women increased from 2.5 per cent in 1997 to 5.7 in 2015 (+3.2 percentage points), which is slightly more than the increase of men (+2.8 per cent). The increase of women in the most prestigious occupations was most significant in Group 4: from 18.1 to 24.6 per cent (+6.5 percentage points), while men increased by only about 2.3 percentage points (4% to 6.8 per cent).

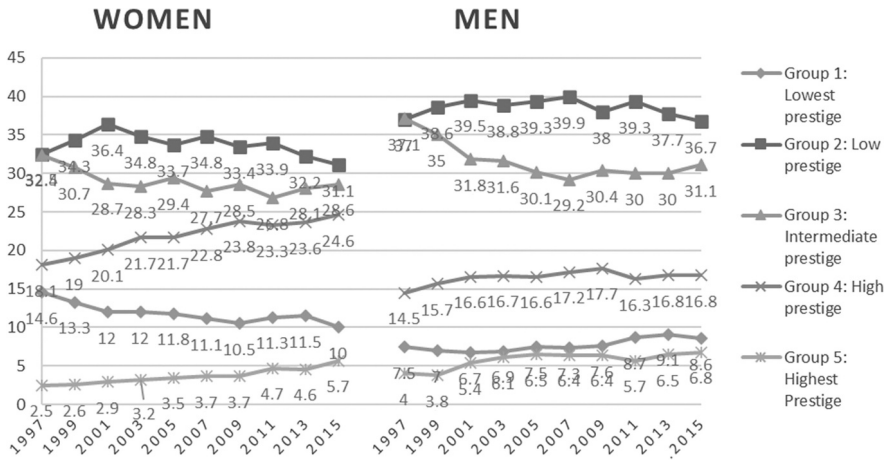

Figure 4.2 The allocation of women and men into prestige groups (percentage). Swedish LFS.

Accordingly, women have, to a further extent than men, been moving from the lowest-prestige occupations into the higher-prestige occupations. Thus, an intriguing question is whether these changes have affected the occupational prestige scores, which will be explored in the next section.

Changes and Stability in Prestige Scores between 2002 and 2018

The two similar surveys of perceptions of occupational prestige conducted in Sweden in 2002 and 2018 provide unique possibilities to explore whether and how occupational prestige scores have changed due to transformations of the job structure and the changes in women's and men's employment discussed above. Comparisons of the prestige scores (PS02 and PS18) show both changes and stability (see Table 4.1).

One initial change to acknowledge is that the range of the prestige scale has decreased. As presented in Table 4.1, in 2002, it ranged from 8 to 92, whereas in 2018 it ranged between 14 and 89. Thus, the range has decreased by 9 prestige points (2002:84; 2018:75), indicating that occupational prestige has compressed, rather than polarised, and with a tendency to even out the distance between high- and low-prestige occupations. Thus, the overall mean prestige score has risen by two points, from a mean prestige score of 51.3 in 2002 to 53.3 in 2018.

To further explore changes and stability, the scale was divided into three equal parts based on the PS of the occupations in 2002. The cutting points were found at PS02 64 and 40. Occupations within the range 92–64 are called high-prestige occupations, those in the range of 63–41 are medium-prestige occupations, and occupations with a PS02 between 40 and 8 are defined as low-prestige occupations.

Table 4.1 Changes in Prestige Scores, 2002 and 2018 (Prestige Scores and Differences)

Highest-Prestige Strata				*Medium-Prestige Strata*				*Lowest-Prestige Strata*			
Occupation	*2002*	*2018*	*Diff.*	*Occupation*	*2002*	*2018*	*Diff.*	*Occupation*	*2002*	*2018*	*Diff.*
Ambassador	92	86	−6	Bank clerk	63	63	0	Preschool teacher	40	45	5
Judge	89	84	−5	Fire-fighter	62	72	10	Train driver	40	47	7
Medical doctor	89	89	0	Fashion model	60	53	−7	Auto mechanic	37	39	2
Professor	89	88	−1	Meteorologist	60	64	4	Baker	36	46	10
Lawyer	87	89	2	Flight attendant	57	50	−7	Car repairer	36	43	7
Pilot	85	87	2	Midwife	56	60	4	Farmer	36	42	6
CEO	85	85	0	Goldsmith	55	52	−3	Nursery attendant	35	38	3
Researcher	83	85	2	High school teacher	55	57	2	Tailor/seamstress	35	37	2
Civil engineer	81	82	1	Chef	54	57	3	Office secretary	34	42	8
Cabinet minster	80	73	−7	Rock musician	54	52	−2	Mail carrier	32	32	0
Sports professionals	79	75	−4	Physiotherapist	54	59	5	Assistant nurse	32	45	13
MSc in economics	76	74	−2	Enforcement agent	52	45	−7	Security guard	32	36	4
Veterinarian	76	73	−3	Nurse	52	56	4	Bus driver	31	35	4
Film producer	75	71	−4	Artist	51	54	3	Forest worker	31	39	8
Dentist	75	78	3	School welfare officer	49	51	2	Road worker	31	37	6
Stockbroker	74	70	−4	Primary school teacher	48	51	3	Property manager	30	38	8
Engineer	73	77	4	Tour guide	47	40	−7	Fisher	29	33	4
Member of Parliament	73	73	0	Acupuncturist	46	42	−4	Sailor	29	41	12
TV host	71	69	−2	Construction worker	45	47	2	Personal assistant	29	32	3
Psychologist	71	72	1	Electrician	45	57	12	Taxi driver	29	24	−5
Director of taxes	69	67	−2	Trade union ombudsman	45	44	−1	Shop assistant	27	31	4

(*Continued*)

Table 4.1 (Continued)

Highest-Prestige Strata				*Medium-Prestige Strata*				*Lowest-Prestige Strata*			
Occupation	*2002*	*2018*	*Diff.*	*Occupation*	*2002*	*2018*	*Diff.*	*Occupation*	*2002*	*2018*	*Diff.*
Auditor	67	68	1	Prison guard	44	49	5	Nursing assistant	27	37	10
Web designer	67	61	−6	Carpenter	44	51	7	Waiter/waitress	24	31	7
Author	66	61	−5	Hairdresser	43	43	0	Janitor	24	32	8
Journalist	66	59	−7	Social secretary	42	47	5	Dock worker	23	33	10
Human resources manager	66	69	3	Librarian	41	43	2	Park-tender	18	26	8
Officer	65	69	4	Dancer	41	40	−1	Ticket controller	16	22	6
Pharmacist	64	62	−2	Gardener	41	42	1	Garbage collector	16	29	13
Police	64	63	−1					Cleaner	16	19	3
Priest	64	57	−7					Fast food worker	13	24	11
Art director	64	60	−4					Dishwasher	8	14	6
Actor	64	64	0								

Notes: Based on PS02 and PS18.

Looking more closely at the three prestige strata, some overall changes are noted. In the sum of all changes, the high-prestige occupations dropped by a total of 49 prestige points. Approximately half of the occupations in this stratum gained or had unchanged PS, while half decreased in PS. Still, most high-prestige occupations had only small changes, even though there were some examples of more substantial adjustments. For instance, cabinet minister, journalist and priest lost seven prestige points each, whereas engineer and officer gained four prestige points each.

The medium-prestige occupations gained a total of 35 prestige points. Approximately one-third of the occupations placed in this group decreased in prestige score. The greatest drops were found for fashion model, flight attendant, enforcement agent and tour guide (–7 points each), while occupations such as firefighter and electrician increased by about 10–12 points each. However, the majority increased or decreased with only a few points (plus or minus 0–3).

The final group, consisting of occupations that were ascribed the lowest prestige, increased the most in prestige. The 30 occupations grouped here gained together 193 prestige points. Among the highest risers were sailor (+12), garbage collector (+13), assistant nurse (+13), baker (+10), dock worker (+10) and nursing assistant (+10). Interestingly, taxi driver was the only low-prestige occupation to lose prestige points.

The overall tendency is that the prestige scale is evened out, by higher prestige for occupations at the lower end of the occupational prestige rank and somewhat lower prestige at the higher end. The compressed range suggests a decrease in terms of bi-polarisation, that is, the gap between high and low is narrowed.

Based on this descriptive analysis, which has shown some changes in prestige, the question of the reliability of the original SIOPS is raised. This is important not only for the analysis presented in this chapter but also for contemporary research that uses the original SIOPS (cf. Magnusson 2009, 2010; Oesch and Piccitto 2019; Nwaru *et al*. 2021; Ulfsdotter Eriksson *et al*. 2022).

Notably, the correlations between PS02 and PS18 are very strong (Pearson's r = 0.974***), while the level of similarity between Swedish PS and SIPOS has decreased some, from a Pearson's r of 0.826*** in 2002 to 0.819*** in 2018. However, correlations above 0.8 are considered very strong and these findings are in line with previous comparisons (Nakao and Treas 1994).

Even if the correlations are still high, changes in occupations, such as an increase in the share of women, may have affected what structures the occupational ranking. The final analysis in this chapter explores what changes in some bearing occupational characteristics have for prestige scores.

Structuring of the Occupational Prestige Scores

People take different criteria into account when rating occupational prestige (Reiss 1961; Ulfsdotter Eriksson 2006). In this final analysis, we explore how some significant occupational characteristics have affected the prestige scores

and whether their impact has changed over time. The analyses presented in Table 4.2 show how wage, educational level, type of work and gender composition at the occupational level affect PS02 and PS18, respectively. For PS18, the occupations' risk of disappearing is also studied.

Wage is strongly connected to prestige (Lenski 1954). To analyse the significance of wages, average monthly wages were collected (cf. Ulfsdotter Eriksson 2006). In 2002, wages for the selected occupations ranged from 14,100 to 53,300 SEK per month, and between 22,100 SEK and 77,700 SEK in 2018. As shown in Table 4.2 (M1), wage has a huge impact on both PS02 and PS18. It is the single most important characteristic, and even though the effect of average wage decreased somewhat over time, it explains about 65 and 58 per cent of the PS (Adj. R2). Still, the impact of the wage decreases when other characteristics are inserted into the analysis.

Education is another important criterion and tertiary education is a hallmark of high-status professions (Treiman 1977; England 1979). *The Swedish Standardised Occupational Classification* (SSYK: cf. ISCO-88) was used as a proxy to ascribe educational levels to all occupations. Occupations with low educational levels (no or low formal education requirements) have lower PS than occupations with medium educational levels, a tendency that became stronger in 2018 than in 2002. The difference between the reference and occupations with a high educational level (theoretical post-secondary education > 3 years) has increased in a positive direction (see M2). Thus, the educational level seems to have become even more important for occupational prestige.

The type of work may impact occupational prestige, whether it is the mastering of physical, symbolic or human objects (Gesser 1977). Work characteristics, as analytically refined categories, were created to capture the essence and core of the occupations and ascribed accordingly (see Härenstam *et al*. 2000; Magnusson 2009; Ulfsdotter Eriksson and Backman 2014). Occupations dealing with relations, emotions and interactions with humans (and animals) were defined as *human-related*. Examples include physicians, priests, teachers, shop assistants and police officers. Occupations that primarily handle things or physical objects, like cleaners, construction workers and pilots, were defined as *material-related*. *Symbol-related* occupations deal with theoretical and abstract systems (money, law, information) or artistic and communicative performances, like lawyers, researchers, accountants and artists. As shown in Model 3, the explanatory levels increase also when the type of work is inserted into the analysis. Symbol-related occupations, compared to human-related ones, positively impacted PS, and slightly more so in 2018 than in 2002. Material-oriented tasks have a more negative impact, which only becomes significant when gender composition is inserted into the analysis.

The significance of gender for occupational prestige has been debated, and it is sometimes stated that the number of women in an occupation affects that occupation's prestige, as well as wages, negatively (e.g., Magnusson 2009, 2010). The share of women in the 91 occupations ranged from 0–95 per cent in 2002 (mean 43.3 per cent), and 1.60–99.7 in 2018 (mean 46.4 per cent)

Table 4.2 Effect of Occupational Characteristics on Occupational Prestige Scores, 2002 and 2018

Dependent Variable/Independent Variables		*PS02*				*PS18*				
		M1	*M2*	*M3*	*M4*	*M1*	*M2*	*M3*	*M4*	*M5*
Wage	Average monthly	.808***	.660***	.500***	.429***	.763***	.565***	.431***	.363***	.349***
Educational level	Low		-.227**	-.213**	-.216***		-.224**	-.217**	-.232***	-.221***
	Medium		ref	ref	Ref		Ref	Ref	ref	Ref
	High		.164*	.185*	.193**		.225**	.240**	.276***	.248**
Type of work	Material			-.053	-.158+			-.015	-.158+	-.109
	Human			ref	ref			ref	ref	ref
	Symbol			.245**	.226**			.298***	.242**	.236**
Gender	Share of women				-.143+				-.205*	-.216*
Risk of disappearing	High									-.157*
Constant		2.0	10.8***	17.3***	27.7***	13.3**	22.6***	25.7***	37.8***	40.1***
Adj. R2		.649	.729	.777	.785	.577	.671	.745	.765	.780
No. of occupations		80				82				

Notes:

+= p<0.10.
*= p< 0,05.
**= p< 0,005
***= p< 0,001.
(OLS regression. Standardised regression coefficients). Data from PS02 and PS18.

(Statistics Sweden, 2018). In 2002, the share of women had a weak negative effect on PS. In 2018, the significance is stronger (and the coefficient higher). The insertion of gender affects all coefficients in the mode (M5). The effect of wage decreases, as does the effect of educational level.

The technological transformation of the labour market and the polarisation debate express threats of reductions or even the extermination of occupations. This discourse may have affected perceptions of prestige, and therefore also the prestige scores. Thus, a variable capturing the risk of disappearing was constructed. Occupations predicted with more than 75 per cent risk of computerising were coded as 'high risk' (Fölster 2015; Frey and Osborne 2017). Nineteen occupations fit this category, including cleaners, warehouse workers, dishwashers, bus drivers and machine operators. Notably, a high risk of disappearing lowers the effects of wage, education and differences in type of work, but increases the negative effect of the share of women.

The full models explain nearly 80 per cent of the variations in the PS of both 2002 and 2018. As has also been discussed, perceptions of occupational prestige, and the concept as such, are multidimensional and people take several different occupational aspects into account when rating the prestige of an occupation (Reiss 1961; Ulfsdotter Eriksson 2006).

Concluding Discussion

Occupational prestige is said to mirror rewards to what are considered important occupations following the division of labour in industrial societies, and occupational prestige scores have proven stable over time and place (Treiman 1977; Hout and DiPrete 2006). Still, in times of technological changes, and with restructurings of the labour market, such stability may have been disturbed. The presumed stability of prestige also makes it useful to explore changes and increased polarisation of the labour market. Therefore, the overall aim of this chapter was to explore prestige polarisation in the occupational structure and prestige scores, and if and how women's and men's movements within the occupational prestige hierarchy have affected occupational prestige.

A few conclusions can be drawn from the results presented in this chapter. First of all, the prestige scores in Sweden stand strong over time and correlate highly with the original SIOPS, even though the correlation was slightly stronger in 2002 than in 2018. This can, of course, be explained by the low response rate in the 2018 survey-version, but since the correlation between the two Swedish studies is high, it may be an effect of actual changes in prestige ascriptions between the original SIOPS and evaluations in contemporary Sweden.

Furthermore, the overall tendency of how employment is allocated in the prestige hierarchy is in line with the upgrading thesis (Oesch and Piccitto 2019; Tåhlin 2019). The patterns are somewhat similar for women and men, even though the increase of women in high-prestige occupations exceeds the figures for men. Thus, there are signs of greater upgrading tendencies among women

than among men. This inflow of women challenges the gender composition in some previously male-dominated domains, such as judges, lawyers and physicians, even though it does not challenge the vast gender segregation particularly, which is more salient in the middle- and low-prestige occupations (Ulfsdotter Eriksson *et al.* 2022). The changed gender composition in the higher-prestige strata challenges social polarisation. This development has taken place in connection with the great educational expansion. However, the findings in the present study suggest that the impact of higher education increased between 2002 and 2018. Thus, education continues to be a polarising force in society, and for individuals, contributes to increased gaps between those who have and those who do not have a higher education. This does not necessarily mean that the greater presence of women in higher education and high-prestige occupations will halt gender inequality and truly challenge the gendered power relations.

There are indications that the share of women impacts prestige scores negatively, and that this has increased over time. This may be an effect of an increase of women in traditionally male high-prestige occupations, but it may also be an effect of vast amounts of women being employed in occupations that are also ascribed low prestige. However, if an increased presence of women in typically male-dominated high-prestige occupations continues to decrease occupational prestige, it is the very presence of women and not the nature of the occupation (that is, tasks, competencies, technology) that contributes negatively to prestige. This would be unfortunate, as it suggests that the symbolic value of masculinity seems impossible to break (cf. Bourdieu 2001; Ulfsdotter Eriksson 2006). It may also indicate that the very concept of prestige is gender-biased – or blind – as previously suggested (Acker 1980; Jacobs and Powell 1985). On the other hand, prestige loss in high-prestige (often male-dominated) occupations may also be an effect of increasing doubts and criticism against elite segments in society.

Transformations in the labour market seem to also have other social impacts. Between 2002 and 2018, the range of the Swedish occupational prestige scores was affected. The range has been compressed, has a shorter distance between high-prestige and low-prestige, and surprisingly from a polarisation perspective, not pulled more apart. The compressed range is in line with previous research (Pohoski *et al.* 1976; Nakao and Treas 1994). It is primarily the low-prestige occupations that have gained higher prestige points. In terms of polarisation, one way to theoretically explain the devaluation of high-prestige occupations and the compression of the range relates to increased suspicion of the meritocratic society and elites. Downgrading high-skilled and high-waged elite occupations in favour of low-skilled and low-waged occupations may be seen as a way to flip the traditional prestige hierarchy (cf. Ridgeway 2014). The shrinking prestige scale can be considered to compensate for unequal financial rewards for work, to counteract other tendencies of polarisation, as discussed in Chapter 3.

Wage, educational level and the type of work conducted are important characteristics of occupational prestige, and the combination of these explained more than 70 per cent of the variation in prestige scores. The impact of wages and educational requirements has weakened over time, while the type of work seemed to be more important to how prestige is attributed. Material-oriented occupations, primarily working with things (Gesser 1977; Härenstam *et al*. 2000), had a negative effect on prestige, which has also increased over time. Dealing with symbols, and abstract and theoretical systems, which also characterised several of the high-prestige occupations, had a positive impact on prestige scores. In addition, a high risk of disappearing due to technological developments had a negative effect on prestige scores. All of these findings connect well to the labour market transformations discussed in Chapters 1 and 3.

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5 Polarised perceptions of occupational prestige?

Ylva Ulfsdotter Eriksson

Introduction

The debate on whether contemporary societies are polarising is not only evoked in relation to outcomes on the labour market, as described in several chapters in this book; societies are also discussed as becoming increasingly polarised in terms of attitudes and values, especially regarding ideological and political views and opinions (e.g., DiMaggio *et al*. 1996; McCarty 2019; Oscarsson *et al*. 2021). Still, research on attitude polarisation emphasises that 'even though people believe polarization to be common', 'attitudes rarely polarize' (Baldassarri and Bearman 2007: 784). Baldassarri and Bearman also pointed out that when research on attitudes shows tendencies of polarisation, it concerns either controversies in the political elite, or on so-called 'take-off' issues, such as abortion or war, which are subjects that may be perceived as controversial and/or sensitive. Thus, there are good reasons to explore the polarisation of attitudes around less controversial topics and among 'common' people. This chapter studies the general public's perceptions of occupational prestige.

Occupational prestige perceptions may be seen as the opposite of a take-off issue, at least since prestige perceptions have been characterised by remarkable consensus (Davies 1952; Treiman 1977; see also Chapter 4) and described as 'firmly lodged in the collective conscience' (Kraus 1978: 915). Occupational prestige has even been called sociology's 'great empirical invariant' (Marsh 1971: 114).

Then, in times when opinions are believed to be diverging, or even polarised, there is reason to return to the stable fact of prestige perceptions to explore variation and consensus. The foundation for how occupations are valued and rewarded in terms of prestige, is found in the division of labour in advanced industrial societies and depends on the complexity and difficulty of the tasks (Treiman 1977; cf. Davis and Moore 1945; England 1979; Tåhlin 2023). In contemporary labour markets, complexity in tasks and the division of labour is challenged when human labour is increasingly supplanted or supplemented by technology (Brynjolfsson and McAfee 2014), which may be reflected in how occupations are valued and evaluated in terms of prestige.

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When the content and conditions of jobs and occupations change, perceptions of occupational prestige may become more varied. An additional motive to again explore prestige perception is that previous studies have criticised and questioned vast consensus premises in research on occupational prestige (Coxon 1983; Coxon *et al.* 1986). Blaikie (1977: 113) even argued that the research tradition as such is 'plagued with sociological reifications and absolutist assumptions', and that differing views were ignored in the search for consensus (cf. Alexander 1972; Penn 1975; Haller and Bills 1979; Ulfsdotter Eriksson and Nordlander 2023).

The study presented in this chapter explores perceptions of occupational prestige at two points in time (2002 and 2018) to scrutinise polarisation in attitudes. The following questions are addressed: (1) How have perceptions of occupational prestige evolved from 2002 to 2018 – are prestige perceptions continuously universal or are they polarising? (2) Are there any subgroup differences in perceptions of occupational prestige, and, if so, what are they?

This chapter connects to the polarisation of attitudes rather than labour market outcomes. Still, occupational prestige concerns the 'social valuation attached to work in a society […] referring to both the kind of work a person does and the situation in which one works' (Reiss 1961: Ch. 2: 10). In exploring prestige perceptions through cross-sectional data, this chapter studies how people's perceptions are distributed over the prestige scale, as well as whether these values have changed over time. Thus, it studies both polarities (the occurrence of opposite evaluations) and polarisation, as the survey data are from two points in time it allows us to explore changes and a potential increase of diverging perceptions (DiMaggio *et al.* 1996; McCarty 2019). Following the different types of polarisation, as described in Chapter 1, this chapter revolves around *value polarisation*, which Duclos and Taptué (2015) called 'income polarization', with a focus on dispersion (Bramson *et al.* 2016). As the chapter also explores subgroup variances, it also addresses issues relating to *bi-polarisation* and to whether gaps between clearly identifiable groups has increased over time.

The remainder of this chapter is structured as follows. The next section discusses how previous research has dealt with perceptions of prestige and its conceptualisations. Thereafter, the methods and material are described, and the results are presented. The chapter ends with a concluding discussion.

Prestige perceptions and polarisation

Prestige perceptions

From the first occupational prestige studies onwards, the consensus in perceptions has been fundamental. Davies (1952: 141) stated that 'direct attempts to crack open this shell of consensus […] have been largely fruitless'. The vast consensus was made clear in several studies (Inkeles and Rossi 1956; Svalastoga 1959; Marsh 1971; Nakao and Treas 1994; Ulfsdotter Eriksson 2006).

The unanimity was most profoundly evidenced by Treiman (1977: 59), who in the late 1970s compared some 85 studies from around the world and concluded that 'One of the most striking features of occupational prestige systems in almost all societies is the lack of subgroup variation in prestige ratings'. The 'ample individual-level consensus in occupational status evaluations' has been explained by shared beliefs of what jobs and occupations are considered prestigious or not (Balkwell *et al*. 1980: 865).

Occupational prestige studies have had a 'consensus-driven' approach, and even if some researchers have admitted that there may be individual divergences, the general holding is that subgroup variances are lacking in evidence (Hodge *et al*. 1982). However, the invariances have been contested and consensus in perceptions has been questioned. According to Blaikie (1977), most studies have aimed to confirm consensus due to an endeavour to legitimise the structure-functionalist principles of the prestige hierarchy, in which prestige was seen as a reward for occupations that are important to society (Davis and Moore 1945; Treiman 1977). Thus, the pursuit to confirm stability has contributed to low engagement in the search for variances in prestige perceptions. Coxon *et al.* (1986: 43) even argued that the structuralists violate data by aggregating nuanced prestige perceptions into mean averages and prestige points: 'The stress upon the explanation of consensus may ignore many of the subtle factors beneath the seeming agreement' (Gerstl and Cohen 1964: 254). The critique referred mainly to the analytical strategies in prestige studies.

Commonly, occupational prestige is studied through survey questionnaires in which respondents rate several occupations concerning their social standing on a set scale (Reiss 1961; Treiman 1977). By calculating prestige scores or the average mean, 'all individual variation has been removed' (Coxon *et al*. 1986: 45) and diversity in perceptions is hidden using mean values that per definition conceal variations (Blaikie 1977). Coxon *et al.* (1986: 26) showed how the construction of prestige scores hid differentiated judgements, in that an occupation with highly diversified ratings may end up with the same prestige score as an occupation that is perceived more uniformly (cf. Svalastoga 1959).

Discrepancies in perceptions and subgroup variances have been found in previous studies. Blau (1957: 398) showed that men in high-prestige positions expressed 'stricter standards' and rated low-prestige occupations lower than those occupying them and that professionals overrated their occupations and underrated lower-skilled ones. Reiss (1961) found that regional differences did not produce any major differences in scores, but that raters from rural areas ascribed lower values. The NORC data also showed that people with higher education ascribed lower scores than the low-educated; professionals ascribed lower scores than labourers; poor people rated occupations higher than prosperous ones; that men and women tended to ascribe prestige similarly, but women scored female-dominated occupations slightly higher than men; and, finally, there were very few age differences in prestige perceptions.

Previous research has revealed that prestige evaluations not only vary with individual background, but also with 'occupational egoism' (Wegener 1992: 266).

People tend to favour, and ascribe higher prestige, to occupations that are similar to their own. Gerstl and Cohen (1964) acknowledged the 'situs context' of the evaluator and argued that the point of reference was close to the raters' occupational standing. Alexander (1972: 772) argued that prestige perceptions followed a pattern of the 'higher the judger's status, the greater his judgment dispersion'. Re-calculations of the original NORC data showed that the 'dispersion of judgements decreases as the status of the judge decreases' (Alexander 1972: 769). That is, low-prestige raters are less inclined to rate occupations as poor in status, and instead tend to upgrade them. People do not simply respond consensually to a prestige structure, but responses are based on experiences that foster prestige perceptions.

In Sweden, Ulfsdotter Eriksson (2006) found that the most uniformity in perceptions occurred among highly and lowly ranked occupations, whereas middle-prestige occupations showed the most spread. Still, separate regression analysis of a selection of occupations showed no systematic differences in perceptions. Age impacted perceptions of some occupations, in that young people attributed higher status to actors and police, while older people instead ascribed higher status to farmers and nurses. Blue-collar workers attributed a higher value to police and childminders than white-collar workers did. Gender had a minor impact in that men attributed a slightly lower status to the police than the reference group women and slightly higher status to farmers.

Polarisation of prestige perceptions?

Perceptions of occupational prestige are about values, and attitude polarisation falls into what Duclos and Taptué (2015) defined as 'income polarization'; that is, the distribution of a variable of interest (i.e., prestige), which in this book is called value polarisation. 'Polarization refers to the extent of disagreement […] in the extremity of and distance between responses' (DiMaggio *et al.* 1996: 692f). In empirical studies, polarisation concerns the use of extreme values in, for instance, studies of attitudes and opinions, such as on a Likert scale when ratings are concentrated at the lower and higher ends. If this pattern also relates to identifiable subgroups, it illustrates the presence of bi-polarisation.

DiMaggio *et al.* (1996: 693) distinguished between polarisation as a state – 'the extent to which opinions on an issue are opposed in relation to some theoretical maximum' – and a process, which concern increased divergence over time. Hence, to fully explore polarisation one must acknowledge both the outcome of a point in time as well as changes over time. In this regard, it is important to explore variances and dispersion over time, as prestige perceptions previously have been portrayed as strongly unified.

Regarding prestige perceptions, there are reasons to explore both a 'polarised state' and whether perceptions have been polarising over time. A 'conscience collective' in society may have been challenged in the last decades, in line with the dissolution of traditions and collective communities and the increase of reflexive individualism and value pluralisation in late modernity

(cf. Pakulski and Waters 1996; Reckwitz 2021). As Inglehart (2008) also showed, younger people in the Western world voice more post-materialistic values than older generations, who are more materialistically oriented. Such value changes could have also led to greater variations in perceptions of occupational prestige, which may have challenged the collective conscience with no or low variances in how occupational prestige evaluations.

Moreover, the Fourth Industrial Revolution places higher demands on intellectual and cognitive abilities (Jensen and Prieur 2016; Reckwitz 2021) as a lot of work is related to abstract knowledge systems. Contemporary working life also demands emotional and relational competencies, especially in human-related occupations (Ulfsdotter Eriksson *et al.* 2021), and increased demands on abilities traditionally associated with femininity may contribute to an upgrading of female-dominated occupations, in which such abilities are traded. Such changes in competence demand may have also affected prestige perceptions as raters may take different aspects into account.

Methods

The analysis in this chapter draws on two survey studies on 'Perceptions of occupational prestige' conducted in Sweden in 2002 and 2018 (see Chapter 4). In both questionnaires, the first question asked respondents to state, for a selection of occupations, 'how it is valued in society with regards to status', on a scale from 1–9. The analysis in this chapter focuses on a selection of 20 common and familiar occupations, of which the general population may have a perception (Pawson 1982). These 20 occupations have also been thoroughly researched in our previous prestige studies (Ulfsdotter Eriksson 2006; Ulfsdotter Eriksson and Nordlander 2023).

The first set of analyses is mainly descriptive, aiming to explore the dispersion of perceptions to scrutinise polarising tendencies in prestige perceptions. The measures used are changes in mean values, standard deviations, and distributions of responses over the full scale from the two survey years for the selection of 20 occupations. The shape of the distribution and its dispersion of values are common ways to explore attitude polarisation (Bramson *et al.* 2016)

The second set of analyses aims to explore subgroup variations in perceptions. It is difficult to explore perceptions of occupational prestige as each occupation is rated separately and examining variations of attitudes between different categories cannot be done against social background variables in any simple way. Therefore, a principal component analysis (PCA, Varimax rotation) was conducted to enable the construction of occupational families (Coxon *et al.* 1986; cf. Ulfsdotter Eriksson and Nordlander 2023). The PCA conducted from the 2002 data identified three dimensions that covered 19 out of the 20 evaluated occupations and explained 57 per cent of the variations (police officer did not fit well into any dimension and was excluded from the analysis). The dimensions formed three new variables that were constructed as summarised indexes – working-class, white-collar and cultural

occupations – which are defined below. To achieve comparable groups, the same families were constructed on the 2018 data. These factors were used as dependent variables to explore variations in prestige perceptions. OLS regressions were conducted to explore some subgroup variances. Only a few independent variables could be used due to differences in registry data and questions from the questionnaire. The independent variables were as follows: *Sex* (women were reference) and *age* (16–74) were based on register data provided by Statistics Sweden. The variable *social class*, based on the respondents' self-classification on current social class, was also included in the analysis. The class position of farmer was collapsed with working-class (reference) and self-employed with lower-white collar.

Uniformity and dispersion in perceptions

Looking at how mean values have evolved from 2002 to 2018 (Figure 5.1), small and few changes are observed. The mean values from 2002 and 2018 are almost perfectly in line over time. As also noted in Chapter 4, the general tendency is that occupations at the lower end of the prestige hierarchy have increased some in mean values, whereas the means of the higher-prestige occupations either have decreased or are more or less at a standstill.

Still, as noted, mean values hide variations, why we turn to look at how perceptions deviate from the mean. The standard deviation (SD) shows the average deviation from the mean value, and the larger the SD, the greater the dispersion. Figure 5.1 shows standard deviations for the 20 occupations and how they have evolved from 2002 to 2018. As the black line (2018) almost follows the same

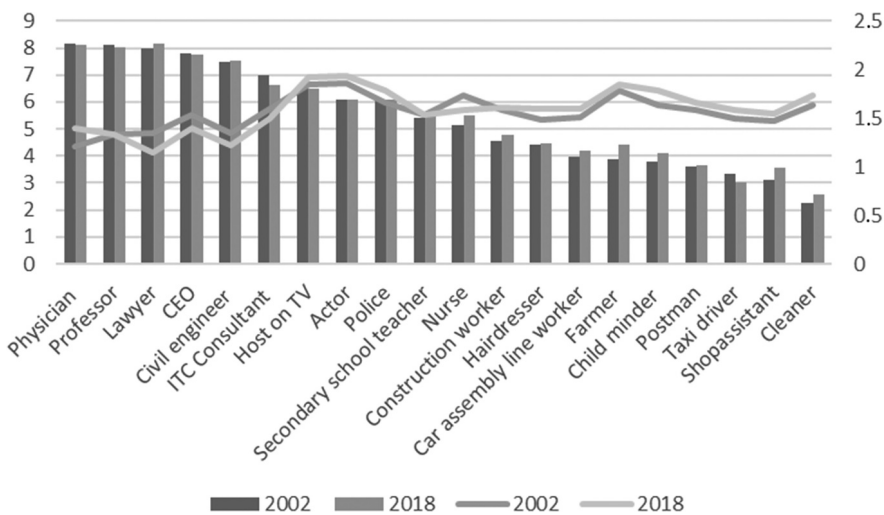

Figure 5.1 Mean values (bars) and standard deviations (SD) (lines) in occupational prestige ratings 2002 and 2018 (weighted values).

pattern as the grey one (2002), it becomes clear that not much has changed in the variation of occupational prestige perceptions. Still, there are some interesting results to note in the search for diversity. The standard deviations are quite high for several occupations, such as actor, host on TV, farmer, police, nurse, construction worker, cleaner and childminder. For these occupations, there was a deviation of nearly 2 points on the nine-grade scale (1.95–1.7). As also noted in the previous study (Ulfsdotter Eriksson 2006), there seems to be more consensus in perceptions of top-prestige occupations, such as lawyer, civil engineer, physician and professor. This is in line with Alexander's conclusion (1972:770) that 'respondents do not differ much in their ratings of those at the upper end of the prestige–popularity continuum; but they progressively differ as the status of the judged object decreases'. Further, in both 2002 and 2018, the respondents agreed on the upper-end occupations, but also quite well on some of the lower-end occupations (such as taxi driver and shop assistant).

Over time, diversions from the mean have decreased for some top-rated occupations, like lawyer, CEO and civil engineer, and have increased for some of the low-rated ones, like childminder and cleaner. Still, both mean values and SD present compressed prestige perceptions and do not really provide a good example for, or evidence of, value polarisation. Therefore, in the next step in this descriptive analysis, we turn to the full spread of prestige perceptions for a smaller selection of occupations to scrutinise how the spread has evolved.

Eight occupations were selected, based on changes in mean values and/or SD, as well as for occupations where very small changes have taken place. For all eight occupations, the dispersions in 2018 follow basically the same pattern as in 2002. The mean value for professor has increased the most (0.48) between 2002 and 2018, but barely the SD (0.01). Still, looking at the distribution of the nine-grade scale, the lines are almost identical (Figure 5.2). Lawyer is the occupation with the greatest increase in SD (0.20), and with a modest increase in the mean value (0.24). In 2002, lawyer had a nearly linear direction from Grade 6 up to Grade 9, whereas in 2018 it plateaued at around 7–8 and then rose steeply to 9. Police is an occupation with very small changes, with the same mean value and a vanishing small change in SD (−0.003), and even though the lines fit rather well, there are some small changes in the middle of the scale, with a flatter bow in 2018 compared to 2002. Taxi driver decreased by 0.53 in mean and only slightly in SD (−0.12), and we also see an increase in the use of the lower parts of the scale (1–2).

Secondary school teacher is perhaps the most interesting occupation to focus on, as the Swedish government has made several efforts to increase the prestige and attractiveness of teachers: a teacher's certificate was introduced in 2011 (Lilja 2011), a career system with a head teacher reform in 2013 (Bergh and Englund 2016), and a salary reform in 2016. Despite these important measures that have taken place between the launch of the two surveys, the average occupational prestige for secondary school teacher increased only marginally (+0.14) and the SD decreased slightly (−0.08). As shown in Figure 5.2, the distribution is very similar at the two points in time, with only

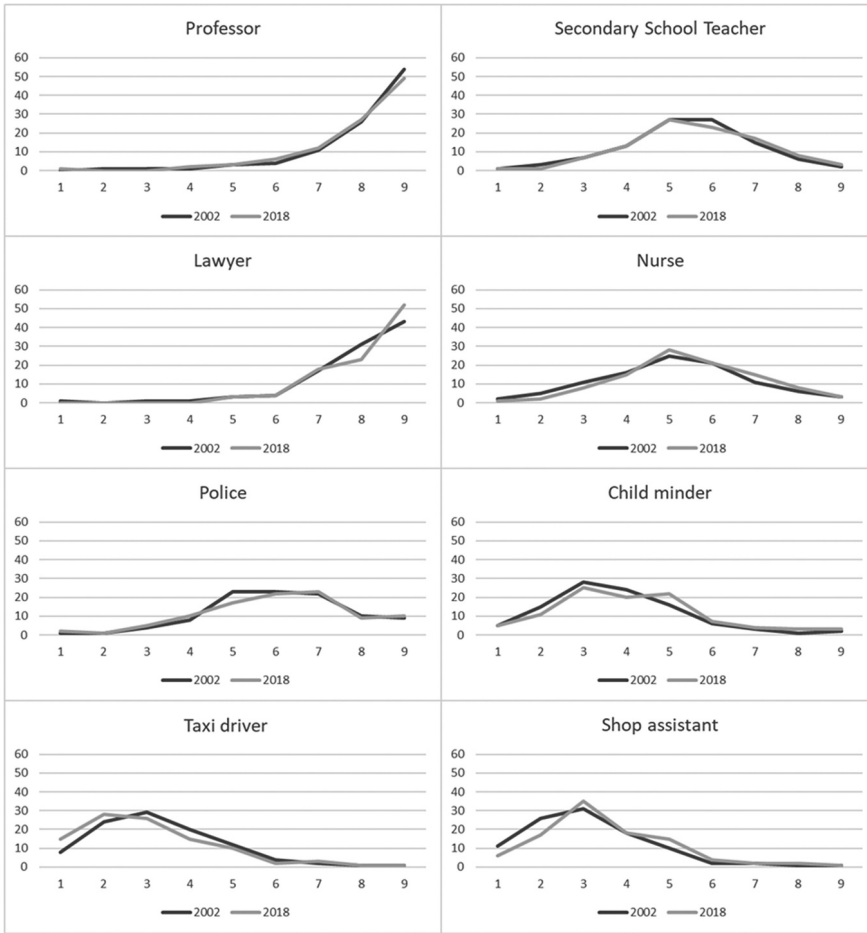

Figure 5.2 Distribution of occupational prestige perceptions on a scale of 1–9 for eight selected occupations (in percentage, weighted values).

minor changes in the middle of the scale. For nurse, the mean value increased (0.24), with a slightly lower SD (−0.15). Looking at the distribution, we see that a higher proportion of respondents in 2018 used the upper level of the scale (points 5–8), as compared to 2002. Childminder increased in mean (+0.007) and decreased in SD (−0.03). Following the lines, we see a slight increase in the use of mid-values (4–5) in 2018 compared to 2002. Finally, shop assistant has similar distributions at the two time-points, even though the occupation has increased some in mean (0.24) and decreased in SD (−0.04).

All in all, we see some changes from mean values to standard deviations and shape of the distribution, but mainly stability and unanimity. Thus far, we have seen no tendencies of value polarisation in prestige perceptions. Even so, in the

next step of the analysis, we look more closely at if and how there are variations depending on a variety of social backgrounds, which reflects bi-polarisation in prestige perceptions.

Dimensions of occupational prestige perceptions

The PCA technique was used to identify 'occupational families' (cf. Coxon *et al*. 1986) and to reduce the number of study subjects (occupations). The PCA analysis of the 2002 data identified three occupational value dimensions that explained 57 per cent of the variations in prestige perceptions, which also corresponded well to other family classifications of occupations (Coxon *et al*. 1986; Ulfsdotter Eriksson and Nordlander 2023).

The first dimension, or occupational family, *Working-class related occupations*, contains occupations defined as blue-collar work and lower pink-collar service jobs, but also secondary school teachers and nurses. A possible explanation for why the two latter occupations, which require tertiary education, fit in this dimension might be that students with working-class backgrounds tend to apply to these kinds of educations, making them working-class related even though they are not usually regarded as working-class occupations (Persson 2017). The reliability of the index also increased when these two occupations were included, and they did not fit well in any of the other dimensions or on a scale of their own. The second occupational family, *white-collar occupations*, assembles professions demanding longer tertiary education, and compared with nurses and teachers, the vast majority of the students have parents with university degrees themselves (Persson 2017). The third and final occupational family, *cultural occupations*, comprised the two occupations of actor and television host.

The identified occupational families suggest that different value spheres are present in the ratings, in which the respondents distinguished working-class-related occupations from white-collar professions, and among the white-collar occupations, they also distinguished the cultural occupations (cf. Coxon *et al*. 1986). Thus, there were underlying patterns of prestige perceptions that had to do with the characteristics of the occupations (cf. Pawson 1982). These occupational dimensions were used in regression analysis (OLS) aiming to explore whether social background characteristics affect prestige perceptions. Table 5.1 presents the full model of the regression analysis.

Starting with the working-class-related occupational family, the OLS analysis showed, firstly, that the explanatory power in the model was weaker in 2018 than in 2002. The model explained 7 per cent in 2002 and about 3 per cent in 2018. On a general level, the analysis shows that there was more unity between different social subgroups in 2018 than in 2002, as the indicators for most groups decreased. Even though they are still statistically significant, men differ less from women (reference) in perceptions of working-class occupations, and age has also decreased in importance. Subjective class had the greatest impact, in which both lower and higher white-collar respondents ascribed lower

Table 5.1 Sub-group influences on prestige perceptions (OLS regression, standardised beta)

	Working-class-related occupations		*White-collar professions*		*Cultural occupations*	
Occupations included	*Shop assistant, car assembly line worker, mail carrier, childminder, farmer, nurse, teacher, hairdresser, taxi driver, construction worker and cleaner*		*Lawyer, professor, CEO, physician, IT consultant and civil engineer*		*Actor, TV host*	
Year	**2002**	**2018**	**2002**	**2018**	**2002**	**2018**
Mean	*43.21*	*45.21*	*46,58*	*46.40*	*12.78*	*12.58*
Std. Dev.	*12.28*	*12.69*	*6.13*	*5.59*	*3.31*	*3.48*
Cronbach's Alpha	*.906*	*.917*	*.836*	*.809*	*.754*	*.766*
Sex						
Men	.057***	−.002*	−.267***	−.373***	.045***	−305***
Women	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Age	.016***	.009***	−.004***	.003***	−.017***	−.020***
Subjective class						
Higher white collar	−.336***	−.279***	.346***	.391***	.494***	.415***
Lower white collar	−.245***	−.285***	.123***	.152***	.037***	.543***
Working-class	(ref)	(ref)	(ref)	(ref)	(ref)	(ref)
Adjusted R2	*.069*	*.031*	*.037*	*.062*	*.038*	*.063*
Constant	*3.322***	*3.851***	*7.966***	*7.653***	*7.017***	*7.032***

Notes: *= p<0.05; ***= p<0.001.

prestige to working-class-related occupations that those identifying as working-class themselves (reference). Still, the discrepancy increased for the lower-white-collar group, who thus tend to ascribe lower values to working-class-related occupations in 2018 than in 2002.

For white-collar occupations, the explanatory level increased, and the model was stronger in 2018 (6 per cent) than in 2002 (3.7 per cent). For these occupations, the gap between men and women increased and men ascribed even lower prestige to these kinds of occupations in 2018 than in 2002. Regarding subjective class, the indicators suggest that the gap is also growing between higher- and lower-white-collar respondents compared to those from the working class, where higher-white-collar respondents tend to ascribe higher prestige to these kinds of occupations than lower-white collars and the reference group of working-class. The impact from age changed in direction somewhat, as in 2002 the trend was that the older the person, the less prestige was ascribed to white-collar occupations, whereas in 2018 it is the opposite – the older the person, the more prestige was ascribed to lawyers, professors, CEOs and the like.

The explanatory level for the culture-oriented professions has also increased (2002: 3.8 per cent; 2018: 6.3 per cent). There are also some interesting gaps in perceptions to note. First, the gap between men and women has increased in that men ascribe increasingly lower prestige to cultural occupations than women. Lower-white-collar respondents ascribe much higher prestige to these occupations than the other subjective classes do. A small negative correlation is also noticeable for age, as older respondents ascribe lower prestige to actors and hosts on TV than younger respondents.

To sum up, as in previous analysis on variances in prestige perceptions (Ulfsdotter Eriksson 2006), it is not easy to summarise how social background affects perceptions as the outcomes pull in different directions. Men's and women's perceptions have become increasingly unified for working-class-related occupations but more diverse for white-collar and cultural occupations. Age impacts some occupations, especially regarding cultural and working-class-related ones. Subjective class seem to underly some variances in perceptions and, in line with previous research, there is a tendency to favour occupations in one's sphere. Still, in some cases, discrepancies are lowered, while in others they have increased.

Concluding discussion

In the quest to explore prestige perceptions and attitude polarisation tendencies, this chapter addressed if and how prestige perceptions have evolved from 2002 to 2018 and whether it is possible to identify any subgroup differences.

As concluded in Chapter 4 of this book, the occupational prestige rank order remains intact. Since the prestige scores build on mean values, it is unsurprising that the analysis of changes in mean values 2002–2018 is modest. The analysis of standard deviations (SD) did not show any major deviations over time, and the SD in 2018 are mainly in line with those from 2002. Besides the

general lower dispersion in higher prestige occupations compared to lower prestige, over time there has been a small tendency for decreased dispersion in prestige evaluations among the higher-ranked occupations, but somewhat increased SDs among the lower-ranked ones. Respondents also tended to make use of the whole scale (1–9) in similar ways in 2002 compared to 2018, when ascribing prestige to occupations. Thus, we see no tendencies of value polarisation in prestige perceptions.

Despite these similarities in rating behaviour, the regression analysis showed some subgroup differences. Men attributed lower prestige than women to white-collar and cultural occupations, which is a difference that has increased between 2002 and 2018. However, the sexes have grown more alike in terms of how they attribute prestige to working-class-related occupations. Age also impacts prestige perceptions, especially of cultural occupations. The latter is perhaps due to more post-materialistic values among youth (Inglehart 2008). Subjective social class also impacts perceptions, and the outcomes follows from previous studies showing that raters tend to favour occupations close to their prestige strata (Alexander 1972).

Even though the analyses witnessed some dispersions and subgroup differences, the differences are too small and scattered to allow talk of any kind of bi-polarisation. An argument for scrutiny polarisation within occupational prestige was that prestige perceptions have been shown to be remarkably stable and can be seen as less of a take-off issue that evokes strong feelings and controversies. However, due to the evidenced consensus and the low disparities in occupational prestige perceptions (Treiman 1977; Krause *et al.* 1978; Ulfsdotter Eriksson 2006), this may be the wrong place to look. On the other hand, if attitude polarisation is anything more than sharp viewpoints on controversial issues, we need to examine its occurrence in this kind of stable phenomenon as well. If, as previous research has shown, polarisation in attitudes and values mainly takes place from the standpoints of the political elite, it is important to also study attitudes among the general public and highlight research that does not prove polarisation (DiMaggio *et al*. 1996; Baldassarri and Bearman 2007; McCarty 2019; Oscarsson *et al*. 2021). Therefore, the main conclusion of the present chapter is that when it comes to perceptions of occupational status, we see no tendencies of value polarisation or bi-polarisation. Perceptions of occupational prestige are still 'great empirical invariant' (Marsh 1971: 114) – or a very hard shell to crack (Davies 1952: 141).

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6 Transmitted inequalities?

The second generation and migration history penalties on the Swedish labour market

Gabriella Elgenius, Denis Frank, Vedran Omanović and Tomas Berglund

Introduction

This chapter analyses the mobility patterns within the Swedish labour market with reference to the prospects of the early careers of the second-generation of migrant background. Previous research has demonstrated that minoritised population do not compete on equal terms with the majority on Western labour markets. Unequal chances have been understood through concepts such as 'ethnic penalties' (Heath and Cheung 2007) or 'dual penalties' that minoritised populations face on the basis of their ethnicity and religion (Khattab and Johnston 2013; Khattab and Modood 2015; Modood and Kahattab 2015). Whereas the second generation's prospects and positions have improved compared to those of first-generation immigrants, the second generation continue to pay a penalty for discrimination and for the unfavourable conditions of settlement experienced by their parents. Notably, considerable variation exists for various immigrant populations in different Western labour markets where individuals of non-European origins experience disadvantages in all countries (Midtbøen 2015).

The aim of this chapter is to outline the variation in career trajectory of the early careers of the second-generation (20–24-year-olds), and compare their outcomes to the first-generation immigrants, their parents' generation, and to the Swedish-born without a migration history. The variations in mobility patterns will enable us to assess the extent of disadvantages on the Swedish labour market due to origin and to explore possible explanations. Individuals tend to establish themselves on the labour market between the ages of 20 and 24, so a focus on this age group helps to assess the degree to which an 'ethnic penalty' exists in the context of the changing Swedish labour market and welfare state (see Chapters 2 and 3). By considering various labour market pathways at different points in time, we determine whether the prospects of the early careers of the second generation have changed over time.

The term 'second generation' refers in this chapter to individuals who were born in Sweden with two parents of immigrant backgrounds. The term the 'second generation' has been criticised for naturalising 'a category that does

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not exist' (Chimienti *et.al.* 2019) and we use this with caution and as an analytical category to illuminate the unequal nature of mobility patterns on the labour market for children of immigrants born in Sweden. The second generation is also a heterogenous population in terms of parents' origins, reasons for migration, prospects and challenges. The focus on positions and prospects enables us to assess the extent to which inequalities and penalties are transmitted over generations, especially regarding access to the Swedish labour market and the career pathways on it. We problematise the term the second generation later on in the chapter and propose that disadvantages transmitted from the first to the second generation may be conceptualised as a migration history penalty (MHP).

The empirical material analysed for this study consists of register data (LISA). We first compared the labour market situation for 20–24-year-olds at two time points (2001 and 2014). Thereafter, we studied mobility patterns over a 10-year period (2005 to 2014). All outcomes are compared between the first and second generations and with individuals born in Sweden to Swedish-born parents. Before moving on to the empirical analysis, we present a brief overview of the studies of labour market penalties for the second generation.

The mobility patterns and penalties of the second generation

We build on the conceptualisation of 'ethnic penalties' that highlights the transferred disadvantages experienced by minoritised populations, including immigrants and their descendants on the labour market. A penalty refers to the differences that remain in labour market outcomes between majorities and minorities after controlling for origin and human capital (Heath and Cheung 2006, 2007; Midtbøen 2015) and individuals pay penalties for their origin and socio-economic and structural inequalities (Berthoud 2000; Hasmath 2012). The Western labour markets with a substantial migrant labour force, show 'considerable cross-national variation in the magnitude and scope of ethnic penalties' (Midtbøen 2015: 188) and the variation is explained by country-specific labour market conditions, institutional constraints, structural discrimination and different migration and citizenship regimes.

The disadvantages of the first generations are well documented around the challenges for qualification recognition, lack of social networks and language proficiency. However, such disadvantages should not hamper the opportunities of the children of immigrating parents to access schools and obtain nation-specific qualifications (Duvander 2001; Heath and Cheung 2007). Heath and Cheung's (2007) cross-national comparisons of Western labour markets found that immigrants of non-European origins do not compete on equal terms and that their disadvantage is transferred to their children. For example, Africans, Caribbeans, Pakistani and Bangladeshi men experience disadvantages on the British labour market, in terms of high unemployment rates, concentrations in routine and semi-routine work and lower hourly earnings compared to British and other white men. Similarly, the second-generation men from these backgrounds continue to experience disadvantages in the labour market at all levels

of education, regardless of educational attainment. As noted by Heath and Cheung: 'Men from these ethnic minorities are much less likely to obtain jobs than are equally qualified white men and disadvantages remain for the second generation' (2007: 65). Similar results have been found for the French labour market (Leftanc 2010), and Crul and Vermeulen (2003) emphasise low family incomes, deprived socio-economic conditions and segregated schooling as factors that negatively impact the opportunities of the second-generation in the Netherlands. Similarly, in Sweden, the second generations face income inequality and unfavourable socio-economic conditions despite high educational aspirations (Jonsson 2007; Urban 2018). Significantly, a recent report confirms that young people with migrant backgrounds are more likely to study at tertiary and upper secondary levels than to be established on the labour market (Jonsson *et al*. 2022).

The second generation in Sweden and changes on the labour market

The second generation is a heterogenous population with reference to parents' migration history, origins and legal status, which translates into different experiences for their children (Chimienti *et.al.* 2019; Bucken-Knapp *et al.* 2020). Migration patterns and changes on the Swedish labour market over the last decades are outlined briefly below.

During the 1960s, large numbers of immigrants arrived in Sweden from Finland, the former Yugoslavia, Greece and Italy, to join the expanding manufacturing industry (Castles and Miller 2009). In the economic downturn of the 1970s, labour immigration declined and was gradually replaced by refugees and their dependents, who also increased with the 1990s war in former Yugoslavia (Lundh and Ohlsson 1999; Messina, 2007). With the post-2004 EU expansion, labour immigration increased from the former Eastern European block, such as Poland (Frank 2013). Asylum seekers and refugees from Afghanistan, Iraq, Iran, Somalia and Syria have been significant immigrant categories in Sweden. In proportion to its population, Sweden received the largest number of asylum seekers in the EU, primarily from Syria, during the refugee emergency of 2015. Immigrants from Syria have recently surpassed the number of Finnish migrants, traditionally the largest immigrant population. Due to the war in Ukraine, Sweden received around 53,000 refugees in 2022 (UNHCR, 2022). Overall the share of foreign-born has increased rapidly in Sweden: in 2000, 11.3 per cent were born abroad, a figure that increased to 21 per cent in 2023 (SCB, 2024).

As described in Chapters 1 and 3, significant changes have taken place on the Swedish labour market during the last 30 years, with the strong growth of high-paid employment, the decline in mid-range occupations, and the relatively stable proportion (or even slight increase) of the lowest-paid jobs. Such changes in the occupational structure have not been conducive to equal opportunities for immigrants (Berglund *et al*. forthcoming). The combination of structural disadvantages such as the lack of access to related domains of

integration (Elgenius 2023) and the changes in the occupational structure has led to an ethnification of the Swedish occupational structure, where an increasing number of immigrants are placed at the bottom of the occupational wage structure, whereas Swedish-born people are more frequently found in the upper strata.

Thus, the first-generation immigrants face structural disadvantages that are transmitted to the second generation; in particular, populations of non-European origins tend to have lower earnings and a higher risk of unemployment than other second-generation populations or Swedish-born people (Rooth and Ekberg 2003) who do not have a migration history. Non-Europeans are also at risk of working in low-paid employment and of having fewer opportunities to obtain high-paid jobs. The proportion of the second generation of migrant descent in well-paid occupations is also significantly lower when compared to categories (Gorodzeisky and Semyonov 2017) without a migration history. The increasing numbers of immigrants in low-paid positions, and the tendencies towards a polarised and ethnified occupational structure in Sweden, signal that the prospects of the young second generation will be affected by the restricted mobility that minoritised populations face (Berglund *et al*. forthcoming). Recent field experiments about discriminatory hiring practices in Europe and North America have identified Sweden as having one of the highest discrimination rates (Quillian *et al*. 2019).

This study assesses the prospects of the early careers of the second-generation on the Swedish labour market, who are educated in the Swedish educational system, and explores the impact of polarising tendencies for this population. Consequently, if the position of the second-generation on the occupational structure resembles that of the Swedish-born, structural barriers on the labour market have been reduced by the equalising mechanisms of the Swedish welfare state offering free admission to schools and competitive university loans. However, if disadvantages persist and the position of the second generation in the occupational structure remains closer to that of their parents, the Swedish labour market reproduces penalties found in other Western labour markets.

Data and methods

The *Longitudinal Integration Database for Health Insurance and Labor Market Studies* (LISA) is analysed to compare the labour market performance of the first- and second-generation young adults (20–24 years) with immigrant backgrounds, and young adults without a migration history of Swedish background. The labour market outcomes are compared for 2001 and 2014. These two years were selected to extend the period of the comparison, given available data. The LISA observations are based on individuals' participation in the Swedish Labour Force Survey (LFS) on any occasion between 1997 and 2015. The total data available are constituted by an 18-year panel made up of 600,000

individuals and selection was done through random sampling. Since we have focused on individuals aged 20 to 24, this analysis is based on a selection of a total of 54,194 observations in 2001 and 27,002 in 2014.

The immigrant categories shown in Table 6.1 are defined by country of birth. The Europeans include several sub-categories. The non-Europe category is very broad but allows us to reflect on the second generation of non-European descent, which would otherwise be too small if further distinctions were made. The term second-generation immigrant designates individuals who were born in Sweden with both of their parents having been born abroad. People in the category Swedes includes those with one parent born abroad, although the vast majority had both parents born in Sweden (89 per cent in 2001 and 88 per cent in 2014).

We conducted a regression analysis to estimate the risks of the immigrant categories found in different labour market outcomes for 2001 and 2014 with reference to 'not in the labour force'; 'unemployed'; and 'low-wage employment'. The indicators refer to the situation in September (low-wage employment tied to occupation) or November (not in the labour force and unemployment). Not being in the labour force is defined by information provided by employers to the Swedish tax authority about paid wages to individuals (or declarations for self-employed). Being unemployed is defined by being registered as unemployed at the Public Employment Service. Finally, low-wage employment is defined by the median wage of the occupation (on a three-digit level) (based on the Wage Structure

Table 6.1 Categories and definitions

Immigrant categories	*Definition*	*Second-generation Categories*	*Definition*
Nordic	Born in the Nordic countries excluding Sweden	Nordic	Born in Sweden with two parents born in the Nordic countries, excl. Sweden.
EU-15	Born in the EU-15	European	Born in Sweden with two parents born in Europe, excl. the Nordic countries.
New EU Member States	Born in the New Member States in EU, 2004 and forward	Non-European	Born in Sweden with two parents born in a Non-European country.
European	Born in Europe excl. above	Swedish	Born in Sweden with two parents born in Sweden *or* one parent in Sweden and the other one outside Sweden.
Non-European	Born in a country outside Europe	Missing Categories	Combinations of categories or with parents otherwise not defined.

Statistics register). Unlike in Chapter 3, quartiles (rather than quintiles) were calculated for the distribution of individuals in the occupational-wage structure, with low-paid occupations defined as the first quartile. Those individuals were compared to individuals in occupations with better wages; that is, wages above the ones in the first quartile. In addition to the outcome variables and the focal independent variable (migration status), the regressions include gender, age (as a continuous short range, 20–24 years, variable) and highest level of education at the year of the survey, as controls. The indicator of continuing studies was also included in the regression. This variable was based on register variables if individuals had any study allowances during the year.

In a second step, a sequence analysis was conducted, where the 20–24-year-olds were followed over the subsequent nine years between 2005 and 2013. This means that the young individuals would have been 29–33 years old in 2013 and well into the age at which most people have started to establish themselves on the labour market (Engdahl and Forslund 2016). The method for defining sequences is called dynamic hamming, and the SADI package in Stata was used for the calculations (Halpin 2017). This method takes the order of labour market positions (states) into consideration and identifies sequences by calculating the degree of similarity between them. The labour market positions of the individual for each subsequent year are one of the outcomes defined above, also including the opposite of the low-wage position; that is, a better-paid occupation, and whether or not the individual is in further or higher education. However, the positions of not being in the labour force, additional studies, and unemployed were defined as mutually exclusive. Finally, clusters of sequences were extracted using hierarchical cluster analysis with Ward's distance (Halpin 2017). The number of clusters was decided by the similarity and meaningfulness of the sequences in each of them. The clusters are presented with chronograms and the distribution of individuals of different backgrounds is shown in a cross-table.

The final step of our analysis focused on the development of earnings of the young individuals. Our analysis shows the mean earnings between 2005 and 2014 for each of the categories. We conducted a regression analysis of earnings in 2014, including origin, the mobility clusters 2005 to 2013, and controls for independent variables. The dependent variable used is total earnings from employment based on the LISA register.

Labour market outcomes 2001 and 2014

Table 6.2 shows that the shares of individuals (20–24 years in 2001 and 2014) with a Nordic heritage declined, whereas the shares of non-Europeans increased. The share of second-generation individuals with parents of non-European origin was five times higher in 2014 than it was in 2001.

Table 6.2 includes three indicators, or outcomes, of labour market attachment across categories, together with shares of tertiary education and ongoing study allowances. The first indicator, the 'not in the labour force', shows that

Table 6.2 Labour market distribution, 20–24-year-olds across categories, indicators and time

	Origin		*Not in labour force*		*Unemployed*		*Low wage*		*Tertiary educated*		*Study allowance*	
	2001	*2014*	*2001*	*2014*	*2001*	*2014*	*2001*	*2014*	*2001*	*2014*	*2001*	*2014*
Swedish	86.0	83.8	38.5	35.7	7.1	9.5	35.8	37.7	12.0	14.7	43.9	39.3
Nordic	0.6	0.3	51.9	58.9	5.3	4.4	44.6	45.8	14.6	21.8	24.3	30.0
EU-15	0.4	0.5	55.1	56.1	8.3	18.2	24.6	27.0	20.4	21.5	41.7	47.7
New Members	0.8	0.8	56.8	47.7	9.6	13.1	39.8	42.9	14.1	11.9	50.3	39.3
European	2.2	2.0	55.1	38.4	13.1	16.5	46.3	41.2	6.3	20.0	37.4	38.6
Non-European	5.9	6.4	58.4	59.3	9.9	21.8	50.1	53.7	7.3	9.2	43.8	48.8
Sec: Nordic	1.7	0.6	35.8	42.9	10.6	19.6	37.3	30.4	7.4	10.6	30.7	28.8
Sec: European	1.8	2.2	49.3	43.3	9.6	14.3	34.4	41.7	9.8	14.4	40.6	43.4
Sec: Non-European	0.5	3.4	52.6	50.6	7.4	11.2	43.4	47.6	8.7	13.5	54.4	51.2
Total	100	100	40.6	38.2	7.5	9.5	36.7	38.8	11.6	14.4	43.5	40.4
n	54,194	27,002										

first-generation non-Europeans had the highest shares in both years. Similarly, non-Europeans have the highest share of non-employment among the second-generation individuals. Concerning registered unemployment, the overall risk of unemployment increases over time and is highest among the first-generation non-Europeans whose unemployment more than doubled (9.9 per cent in 2001 to 21.8 per cent in 2014). A similarly strong trend was found for the young EU-15 immigrants. Among the second generation, the increase was also very strong in the Nordic category. For the 'low-wage employment' indicator, the overall total share in low-paid occupations increased slightly (from 36.7 per cent to 38.8 per cent) and the early careers are over-represented. In 2014, the largest shares of 'low-wage employment' were found among the first- and second-generation non-Europeans (53.7 per cent and 47.6 per cent, respectively).

In terms of educational attainment (Table 6.2), the share of tertiary-educated increased only slightly over the 13 years, from 11.6 per cent to 14.4 per cent. In the case of the Swedish-born people the increase was 2.7 percentage points, while the corresponding figures for the first-generation Nordic and European categories are 7.2 per cent and 13.7 per cent. For the second-generation individuals with European and non-European backgrounds, the increases are 4.6 and 4.8 percentage points, respectively, and refer to educational grades obtained in Sweden. The lowest shares of tertiary educated in 2014 are found among the first generation from the new Member States, the non-Europeans and the second generation of Nordic heritage. Table 6.2 also outlines study allowances and indicates a high share of more than 40 per cent of the early careers being engaged in studies and training. Significantly, this figure was over 50 per cent for the second generation of non-Europeans, in both 2001 and 2014.

Table 6.3 presents a logistic regression of the impact of immigrant status on the three labour market outcomes, controlling for gender, age, achieved educational level, and the undertaking of additional studies. The controls are important because, for example, females have a higher probability than males to be in a low-paid occupation but face lower risks of being registered as unemployed or non-employed in 2014 (see Model 2). Age and education also decrease the risk of a precarious labour market situation. Undertaking additional education is related to the increased risk of being non-employed and in low-paid jobs, but a decreased risk of being unemployed.

Including the controls in Model 2 (Table 6.3) slightly changes the patterns found for immigrants and second-generation individuals shown in Table 6.2. Concerning non-employment, the higher risk for these categories remains when adding the controls. However, the risk increases for some categories, such as immigrants from the Nordic countries. For both first- and second-generation non-Europeans, the difference is reduced, mainly due to the inclusion of study allowances, as these two categories tend to continue in education to a higher extent than others (see Table 6.2).

Unemployment risks tend also to remain when the controls are added (Table 6.3). The largest and increasing difference to the Swedish reference

Table 6.3 The impact of immigrant status on labour market positions

	Not in the labour force				*Unemployed*				*Low-wage*			
	2001		*2014*		*2001*		*2014*		*2001*		*2014*	
	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2	M1	M2
Origin (Swe ref)												
Nordic	1.53***	2.29***	2.45***	3.30***	0.73	0.67	0.46	0.42	1.31	1.47*	1.40	1.66
EU-15	1.80***	2.11***	2.33***	2.14***	1.26	1.35	2.17***	2.43***	0.63*	0.77	0.61	0.89
New Memb.	2.02***	1.92***	1.65***	1.54**	1.40*	1.48*	1.48	1.32	1.17	1.16	1.27	1.16
Europe	1.72***	2.03***	1.12	1.06	2.02***	1.81***	1.91***	1.82***	1.53***	1.51***	1.17	1.36*
Non-Europe	2.02***	2.17***	2.61***	1.96***	1.51***	1.41***	2.74***	2.49***	1.77***	1.71***	1.90***	1.78***
Sec: Nord	0.89	1.09	1.33	1.57*	1.59***	1.36**	2.29***	2.00***	1.06	1.01	0.73	0.69
Sec: Eur	1.53***	1.69***	1.39***	1.23*	1.43**	1.29*	1.59***	1.59***	0.94	0.99	1.20	1.16
Sec: Non Eur	1.77***	1.47*	1.84***	1.54***	1.08	1.06	1.21	1.32*	1.37	1.39	1.51***	1.45**
Gender (Ref: males)		0.97		0.85***		0.79***		0.68***		4.67***		2.58***
Age (Cont)		0.91***		0.87***		0.92***		0.96**		0.96***		0.89***
Education (Ref: Prim)												
- Secondary		0.46***		0.27***		0.55***		0.42***		0.76***		0.57***
- Tertiary		0.54***		0.27***		0.26***		0.17***		0.28***		0.19***
Study Allow (Ref: no)		6.84***		5.43***		0.48***		0.34***		1.53***		1.44***
Nagelkerke R2	0.01	0.26	0.02	0.23	0.01	0.05	0.02	0.12	0.01	0.19	0.01	0.12
n	53,177		26,854		53,177		26,854		35,226		10,933	

Note: Significance Level *p<0.05; **p<0.01; ***p<0.001

Binomial logistic regressions. Odds ratios.

category is found for non-European immigrants. Regarding second-generation individuals, all three categories have, also including controls, a higher risk of unemployment. This risk is particularly large for second-generation Nordics, a risk that has tended to increase over time. Finally, both non-European first- and second-generation individuals have a higher risk than Swedes of working in low-paid jobs. This risk does not change when including the control variables.

Mobility patterns and labour market attachment

The above analysis shows that the attachment to the labour market differs for the early careers of different backgrounds. The immigrant categories, as well as the second-generation people of various backgrounds, enter into more precarious positions compared to the Swedish reference category. The question is whether differences in early labour market attachment produce penalties for the continued labour market careers of these categories or whether disadvantages diminish over time.

To shed light on mobility patterns, a sequence analysis is employed of a cohort of individuals aged 20–24 in 2005, followed over a nine-year period. For each year, five different positions on the labour market were observed and five clusters of sequences were retrieved from the analysis (Figure 6.1). Besides those clusters, in the analysis we also identified three constant sequences, where individuals remained in the same position – for example, outside the labour force – for all nine years.

The first cluster, *low- to better-paid job*, refers to a labour market trajectory of a long period (on average 3.4 years, see Table 6.4) in low-paid occupations

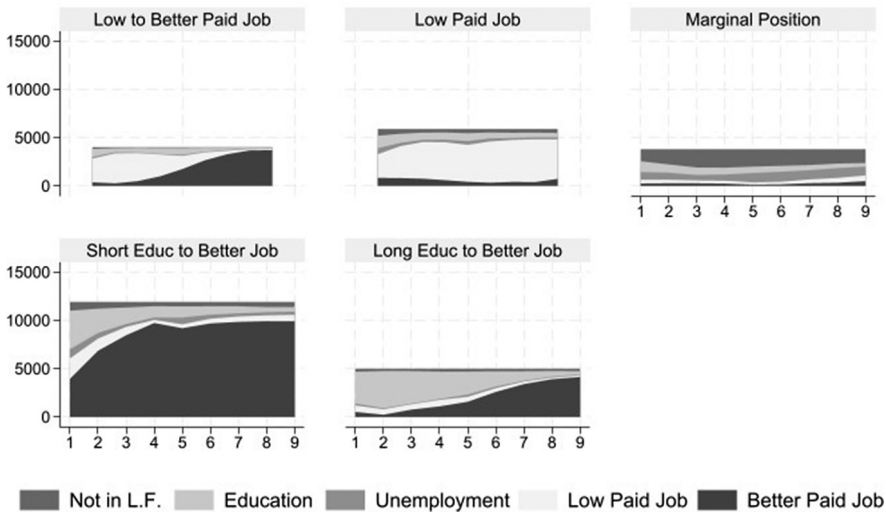

Figure 6.1 Chronograms over clusters of nine-year sequences, 2005–2013. Individuals, 20–24 years of age. Register data from LISA.

Table 6.4 Average years in status within clusters, 2005 to 2013

	Not in labour force	*Education*	*Unemployed*	*Low-paid job*	*Better-paid job*
Low to better-paid job	0.2	1.0	0.2	3.4	4.3
Fluctuating low-paid job	0.7	1.1	0.5	5.8	0.9
Marginal attachment	3.9	1.6	2.0	0.9	0.7
Short education to better-paid job	0.4	1.1	0.4	0.6	6.5
Long education to better-paid job	0.5	3.8	0.2	0.8	3.7

that tend to lead to a transition into better-paid occupations. Approximately 10 per cent of the youths followed this trajectory in the subsequent nine years (Table 6.5). The second cluster, *fluctuating low-paid job*, implies entry into low-paid occupations, in which individuals stay for most of the period (5.8 years). This cluster contains 14 per cent of the cohort. This cluster is rather similar to the constant sequence of *low-paid job, nine years* (6 per cent), with constant employment in the low-paid position throughout the whole nine-year period. The *marginal* cluster includes trajectories outside the labour force (3.9 years), with occasional periods of education, unemployment or low-paid employment. Approximately 9 per cent of the cohort are found in this cluster. Again, a parallel position outside the labour force – *non-employment, nine years* – during all the nine subsequent years was also found, including approximately 2 per cent of the young individuals. The fourth (*short education to better-paid job*) and fifth (*long education to better-paid job*) clusters both imply that mobility to better-paid occupations is an outcome of education. The difference relates to length in education, where the most common fourth cluster (28 per cent) implies a short period (on average 1.1 year) before entering a better-paid position. In the fifth cluster, the average time spent in education is longer (3.8 years) before moving to a better-paid occupation (12 per cent). A nine-year stable position – *better-paid job, nine years* – in a better-paid occupation (19 per cent) was also found and implies a transition from school taking place before 2005.

Table 6.5 also shows how the different immigrant categories are distributed between the clusters. In the most common nine-year trajectory (*short education to better-paid job*), the shares are similar for all the categories and hover around 28 per cent. However, the immigrants from the EU-15 countries and the non-Europeans have smaller shares within the cluster, while the share of the Nordic category is on a higher level than the Swedish reference category. The sequences *long education to better-paid job* are followed by about 12 per cent of the latter, whereas most of the other categories are on a slightly

Table 6.5 Distribution over sequences 2005–2013

	First generation					*Second generation*			*Swedish*	*Total*
	Nordic	*EU-15*	*New EU members*	*Europe*	*Non-Europe*	*Nordic*	*Europe*	*Non-Europe*		
Low- to better-paid job	5.2	6.5	8.3	7.2	8.8	7.5	11.0	8.2	9.8	9.6
Fluctuating low-paid job	15.5	15.5	14.2	17.3	19.3	14.9	12.5	15.8	13.5	14.0
Marginal attachment	13.9	18.7	20.5	17.8	20.3	14.2	12.5	11.8	7.6	9.1
Short education to better-paid job	34.0	20.3	29.7	28.5	24.2	28.0	31.0	27.0	28.6	28.4
Long education to better-paid job	8.3	13.8	11.2	8.1	10.9	6.3	10.6	15.8	12.2	11.9
Non-employment, nine years	5.2	7.3	4.0	2.1	3.4	1.7	2.2	3.2	1.8	1.9
Low-paid job, nine years	5.2	5.7	3.3	7.8	4.3	7.0	6.9	6.4	6.3	6.2
Better-paid job, nine years	12.9	12.2	8.9	11.1	8.8	20.5	13.1	12.0	20.2	18.9
Total	100	100	100	100	100	100	100	100	100	100
(n)	(194)	(123)	(303)	(1,120)	(2,641)	(590)	(670)	(501)	(35,883)	(42,025)

Note: Individuals, 20–24 years, in per cent

lower level. Notably, the largest share (16 per cent) is found for the second-generation non-Europeans.

Four clusters mainly represent positions in employment during the nine-year sequences. The second-largest cluster is a nine-year constant position in a *better-paid job*. The first-generation immigrant and second-generation categories are less represented in this cluster, except for the second-generation Nordics, who are on a par with the Swedish reference category (20 per cent). Immigrants from Europe (17 per cent) and from outside Europe (19 per cent) frequent the subsequent sequence characterised by a *fluctuating low-paid job* compared to the Swedish-born category (13 per cent). The remaining two trajectories – the *nine-year constant low-paid job* and the *low-paid to a better-paid job* – do not show large variations between the categories.

The *marginal attachment* cluster represents long periods of weak connection to the labour market and is more common among first- and second-generation immigrants than for the Swedish reference category (8 per cent). The highest figures are found for immigrants from new EU Member States and from outside Europe (both approximately 20 per cent). The figures for the second generation are lower compared to those for first-generation immigrants, but still higher than the Swedish-borns. The *non-employed nine years* cluster, representing a position with more or less no connection to the labour market, only includes 1.8 per cent of the Swedish category, while immigrants from the Nordic countries and EU 15 have the largest figures (but the total n is small). Moreover, individuals from the new Member States (4.0 per cent), non-Europeans (3.4 per cent) and the second-generation individuals of non-European background (3.2 per cent) have clearly higher figures.

Mobility patterns and earnings

Finally, we turn to how these mobility patterns impact the earnings of the first- and second-generation individuals between 2005 and 2014 when the cohorts are 20–24 years and 30–34 years, respectively.

Figure 6.2 shows the average earnings per year for Swedish-born, first- and second-generation individuals, which are based on register data covering all incomes from paid employment. First, the different categories start on different levels of earnings, with the Swedish reference category and the second generation of Nordic background receiving higher incomes from employment than the other categories. The Swedish reference category receives 1.6 times higher earnings than the non-Europeans, who have the lowest earnings. These differences reduced somewhat in 2014, as total earnings increased for all categories (the difference above is 1.2). Overall, the rate of increase in earnings is rather similar for all categories, with the best development found for the non-Europeans (2.9 times increase, deflated figures) and the second-generation of non-European background (2.7), compared to 2.2 for Swedes. The second-generation Nordics had the smallest increase in earnings (1.9).

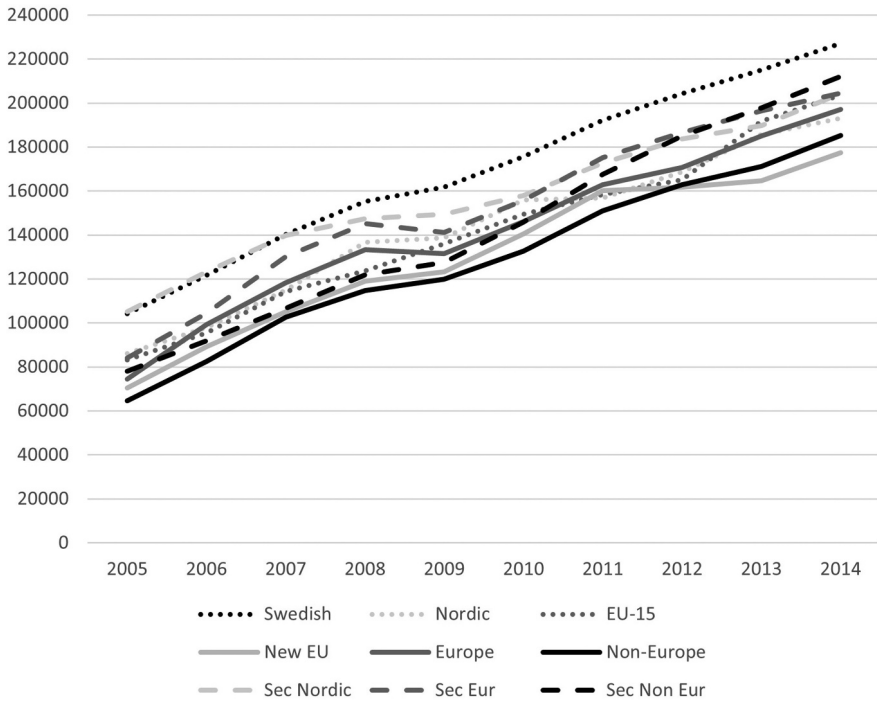

Figure 6.2 Annual mean earnings from employment for a cohort of 20–24 years in 2005. Constant prices. Register data from LISA.

Table 6.6 presents a regression of yearly earnings in 2014. The analysis is conducted in three different models, where the first model includes the different immigrant categories, the second includes the eight mobility clusters, and the third model controls for gender, age and educational level in 2005. Model 1 shows several significant differences between the Swedish reference category and the categories of first-generation immigrants. The largest difference is found for people from new Member States, who earn on average 55,000 SEK less than the Swedish reference category, and the non-Europeans, who earned 41,000 SEK less in 2014. The second-generation individuals also earn less than the reference category, but the differences are smaller and non-significant for second-generation non-Europeans. In Model 2, the different trajectories are included (*better-paid nine years* as the reference) and these clusters impact strongly on earnings. Individuals *not in labour force 9 years* earn 328,000 SEK less than the reference cluster. Similarly, people in the *marginal* cluster earn 256,000 SEK less. Consequently, those trajectories truly represent precarious situations over time and affect individuals' achieved earnings. Moreover, the analysis indicates that individuals who are stuck in low-paid employment during these nine years have rather large income losses compared to those in a better position.

Table 6.6 Earnings from employment

	Earnings 2014 (SEK)		
	Model 1	*Model 2*	*Model 3*
Origin (Swedish ref)			
Nordic	−33,896**	−13,904	−7,410
EU 15	−19,906	15,954	5,613
New EU Members	−54,681***	−20,054*	−17,747*
Europe	−30,345***	−2,131	2,923
Non Europe	−41,101***	−6,170	−4,860
Sec Nordic	−24,517***	−11,396*	−3,815
Sec Europe	−23,868***	−10,624	−12,366*
Sec Non-Europe	−13,645	4,072	3,152
Trajectories (better-paid Occupation 9-years ref)			
Low-paid to better-paid		−64,136***	−40,658***
Low-paid, fluctuating		−149,484***	−108,338***
Marginal		−256,276***	−221,919***
Short educ to better-paid		−60,191***	−53,641***
Long education to better paid		−64,632***	−55,653***
Not in labour force 9 years		−328,590***	−280,935***
Low-paid occupation 9 years		−118,679***	−69,814***
Gender (Male ref)			
Female			−77,555***
Age			668
Education (05) (high ref)			
Low			−85,888***
Medium			−52,983***
Intercept	256,726	338,374	411,292
R2	0.006	0.188	0.273
n	40,993		

Note: Ordinary least square regressions with robust standard errors. Register data from LIS*A*. Swedish Kron*a (SEK)*.

When controlling for the mobility clusters (Figure 6.2), most differences between the first generations of immigrants and the Swedish reference category are reduced and no longer significant. This indicates that differences in earnings are explained by the trajectories that individuals end up in during the foregoing nine-year period, and the strength of labour market attachment they imply. For example, the difference between non-Europeans and the reference group was 40,000 SEK in Model 1 but had reduced to 6000 SEK in Model 2. Table 6.5 showed that the Non-European category is over-represented in the *marginal* trajectory and the *fluctuating low-paid jobs* trajectory but under-represented in the *nine years better-paid* trajectory, which explains most of the

difference in salary between the Swedish-borns and the immigrants from outside Europe. Finally, Model 3 adds gender and educational levels and shows, as expected, that females earn less than males and less-educated individuals earn less than highly educated people. When gender and education are controlled for, only two differences among the immigration categories remain significant: namely, that the first-generation immigrants from the new EU countries and the second generation of European background have significantly lower earnings than the Swedish-born without migration history in 2014.

The analyses of earnings and mobility patterns over time show that the differences in earnings between the Swedish and several of the immigrant categories are still substantial 10 years after the labour market entry period of young people (20–24 years). However, the immigrants' relative increases in earnings have been larger than for the Swedish (with the exception of Nordics). For the second generation, the differences to Swedish are much smaller but still significant. An interesting exception is the second-generation non-European, who have among the strongest increases of earnings and non-significant earnings differences to Swedes in 2014. Overall, the mobility sequences that young people enter strongly affect future earnings. In particular, long-time marginal positions are devastating for earnings after 10 years. Moreover, being stuck in low-paid jobs for a long time also reduces those earnings. Immigrants of the first generation have a higher risk of being found in those trajectories, while the risk is only slightly higher for the second generation than for the Swedish reference category. Moving into education before reaching a paid position seems like a chosen strategy to avoid unemployment or being stuck in a low paid-position for the better future earnings. For instance, this seems to be the case for the second-generation non-Europeans who invest in a longer education, which can be one explanation for their mobility pattern into a better paid-position. Overall, the most advantageous trajectory (in terms of earnings and in the short term) is to enter a reasonably paid job directly. However, this seems to be a mobility pattern that is mainly open only for the Swedish reference category and the second-generation Nordics.

Concluding discussion

In this chapter, we examine the extent to which disadvantages and inequalities are transmitted over generations from the first generation immigrants to the second generation of migrant descent, with specific references to the early career's (20–24) access to and pathways on the Swedish labour market. As mentioned at the outset, we have used the term 'second generation' with caution and as an analytical category to illuminate the unequal nature of mobility patterns on the labour market for children of immigrants and to problematise claims about immigrants' 'lack of integration'. Such claims do not fully consider the barriers to and the unequal access to the labour market or to work or other indicators of integration such as education, housing or health (Elgenius 2023).

First, whilst the second generation do better than the first generation, they do not compete on equal terms with the Swedish-born without a migration history. Although children of immigrants have more opportunities to reach higher positions in the labour market than their parents, these opportunities are not equivalent to the Swedish reference category of the same age group (as we have shown above). In addition, it is more difficult for the second-generation to reach high-wage positions. Thus, a penalty exists for the second generations as they face higher risks of weak attachments to the labour market and of taking up low-wage work.

Second, investing in education is a strategy for the second generation of non-European descent to escape the permanence of such penalties, as also shown by Jonsson *et al*. (2022). The combination of a minoritised position, structural barriers and experiences and expectations of discrimination has been offered as explanation for educational strategies. The Swedish welfare state enables this strategy with free higher education for everyone who meets the admission requirements to study, as well as allowing students to apply for loans.

Third, despite the investment in education, our findings demonstrate that most of the second generations (except from the Nordic groups) face, to different degrees, unequal chances and penalties upon entering the labour market. Low-wage work is more common, as is the risk of unemployment, which is significantly higher for the second generation of both European and non-European origins. Thus, complex patterns of the simultaneous reproduction of disadvantages and upward mobility are found here.

Fourth, the evidence also points in a different direction and demonstrates a striking income development on behalf of the second generation of non-European descent, which, over time, is catching up with the Swedish reference category. However, this appears to be due to their investment in education rather than a smooth transition into the labour market, which is a common pathway for youth from Swedish and Nordic backgrounds.

Finally, the entrance and endpoints of income levels vary across the second-generation populations. For instance, young people with parents born in Sweden and in the Nordic countries start at significantly higher income levels than those of non-European origins, whose endpoints increase to levels similar to the Nordic and Swedish categories. Despite this catch-up effect, the second-generation non-Europeans pay a higher cost or penalty for their background and are more exposed on the labour market than others within the same age category. So, whereas some movements towards the equalisation of positions and prospects on the labour market are found over time – alongside the considerable investment in education – penalties are paid by both first and second generations, and especially by individuals of non-European origin and background.

Returning to the aim of this chapter – which is to analyse mobility patterns and career trajectories for the early careers of the second generations on the Swedish labour market – we have outlined the inequalities transferred over

generations given available data. Previous research has identified such unequal chances faced by immigrants and their children on Western labour markets as ethnic penalties. This study also confirms that such disadvantages or penalties are transmitted from the first to the second generations on the Swedish labour market. Keeping in mind the large heterogenous categories of this study (Europeans, Non-Europeans), these penalties may be associated with migration history (rather than ethnicity) and conceptualised as a migration history penalty (MHP) referring to the transmitted inequalities given the nature of migration, origin, structural disadvantages, unfavourable socio-economic conditions, school segregation and other discriminatory practices.

This study also highlights more positive findings that transmitted inequalities can be reduced, if institutional support is present, especially a schooling system that compensates for disadvantages. While this study has focused on a period in Sweden when institutions still supported the young entering the labour market, questions must be raised whether such educational support remain intact today and continue to create opportunities for young people. Recent developments in Sweden indicates that this no longer is the case.

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7 Work environment trajectories and consequences for trends for sickness absence and occupational disorders

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Introduction

Labour market processes impact the conditions for paid work in different ways and at different structural levels. At the workplace level, working conditions directly influence workers' health, including the risk of sickness absence, occupational injuries and work-related deaths. It has been estimated that approximately 2.3 million work-related deaths occur globally each year (Takala *et al*. 2014). Knowledge of trends in working conditions and social impacts is vital for understanding the wider patterns, determining the impact of interventions and identifying certain risks and their health impact. This chapter presents Swedish longitudinal data from the mid-1990s and discusses the hypothesis of social polarisation between women and men, regarding work conditions, sickness absence and compensation for occupational disorders.

From a global perspective, Swedish workplaces have developed relatively good and safe work environments. Joint efforts of the Swedish state, employer organisations and trade unions have resulted in a systematic approach to improve the work environment and control safety at work. The monitoring of risk factors through national statistics has been conducted regularly over the last few decades to identify risks and help prevent work-related injuries, morbidity and mortality.

Globally, there are clear indications of widened gaps regarding working conditions and their health-related consequences between groups in the working population related to gender and other economic and social circumstances and opportunities (Wu *et al*. 2018). These gaps can be conceptualised as social polarisation (Woodward 1995) and have high relevance for studies of trends in the still highly gender-segregated Swedish labour market.

The uneven distribution of gender into female- and male-dominated sectors has historical roots in the development of the Scandinavian welfare societies, in which a substantial part of the health care and care for children, the elderly and people with functional variations are performed in public institutions. Even though gender segregation has decreased over time, women still constitute most employees in these welfare sectors. The gender-segregated labour

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market implies that women and men experience different exposures and that different preventive measures are relevant.

The present chapter is based on analyses of Swedish register-based data and repeated cross-sectional surveys. We analyse trends for both the general working population and the identified sectors with tendencies of social polarisation. The chapter aims to identify trends in psychosocial working conditions, the incidence of sickness absence, and compensation for occupational disorders, as well as how these may differ in terms of gender and occupations in gender-segregated sectors.

We start by providing a historical description of the Swedish context in these issues and describe the historical development of social insurance and occupational health and safety management (OHSM), the theoretical approach behind the interest in studying trends and some results from earlier studies in this area. We then describe the method and the empirical data forming the basis of the results of our studies. The results of our studies of general and specific trends are presented sequentially and discussed together with results from other studies and available national statistics: (a) trends in psychosocial working conditions, (b) trends in sickness absence, and (c) trends in claims and compensation of occupational disorders. Deviating patterns were seen in the female-dominated care sector. Therefore, we used data from our earlier studies in the care sector to elaborate on specific trends. The chapter ends with a discussion of explanations of the observed social polarisation processes and their health-related consequences in Sweden.

Developments of prevention of work-related health and safety

Working conditions and OHSM have been a policy target in Sweden for more than 100 years. The following motives have driven the development: (a) evidence of associations between exposure to risks at work (such as asbestos and phosphor) and severe health conditions; (b) the need for a competitive skilled workforce in an industrialised society; (c) high-quality register-based data of population, exposures, health outcomes and utilisation of health service and social insurance; (d) institutionalised authorities and institutes focusing on working life; and (e) important collaboration and agreements between employer and employee-representative stakeholders.

In Sweden, regulations to prevent risk exposures were developed in the late nineteenth century. For example, inspections were first regulated in 1870 and worker insurance was established in 1885 regarding compensation for disorders. In 1886, the first law stating employers' responsibility for workers' safety was passed. In 1925, work-related diseases were accepted and classified. Although the severe risks of asbestos have been known since the late nineteenth century with identified associations between exposure to asbestos and pulmonary cancer (Doll 1955) and mesothelioma (Selikoff *et al.* 1965), regulations were not put in place until 1969. In most other countries, however, regulations for asbestos were only determined later; for example, in France, they

were not in place until 1997 and European Union (EU) regulations only appeared in 2005. Compared to most other countries, regulations in Sweden were put in place comparatively early, but focused on chemical and physical risks in industries where unions were stronger and worked more efficiently than in female-dominated professions. Some of these developments have clearly not supported women's working conditions and compensation for occupational disorders. The reasons for this include the numerous studies made in industry that provide credible evidence for associations between exposures and work-related health problems and occupational injuries compared to the number of studies in female-dominated sectors.

The Work Environment Act was introduced in 1977, followed by extensive regulations of applications. According to the law, safe work conditions and the OHSM are primarily the responsibility of employers. OHSM is characterised by close cooperation between labour market parties, a consensus culture, and strong legal support for employees' safety representatives (Frick 2014). The collaboration between stakeholders was already formalised in the Saltsjöbad Agreement (1938; see Chapter 2). However, the evidence of risk exposures in industry and male-dominated sectors drove the collaboration in development. Thus, the formalised OHSM specifically focused on jobs with materials and not on the challenges in the work with humans. Other interrelated developments also miscredited women's resources. For example, the collaboration with trade unions and employers kept the formalised agreement of lower salaries for females until 1965, while the needs of female labour and market forces contributed to shrinking the wage gender gap from 41 per cent to 15 per cent between 1920 and 1995 (Svensson 2003).

Social insurance compensating sickness absence and occupational injuries

Social insurance in Sweden was developed without any specific connection to the work environment or workers' safety. It was directed at compensating for income loss due to diseases and injuries. The early origins of these types of insurance were agreements between groups of workers that paid a sum of money to a common fund from which injured or sick workers, or widows and their children, could be supported. The groups of workers gradually grew and eventually, with the development of the welfare state, these funds were taken over by the state.

The first Swedish social insurance scheme concerned serious occupational injuries (1901) developed over the years and the current legislation was introduced in 1977. In 2002 and 2008, the requirements for compensation were tightened and an extensive investigation is often required before approval. Compensation for serious occupational disorders requires a longer duration of income loss (one year) and evidence of a causal association between conditions at work and the injury and/or the disorder. Nevertheless, social insurance to

provide compensation for serious occupational disorders is universal and anyone employed in the country is covered.

The first Swedish law on universal social insurance covering sickness absence was enacted in 1955, in a context when industries such as agriculture, construction and manufacturing dominated, men were the main breadwinners and married women seldom worked outside the home. Major changes took place in the mid-1980s as women with children returned to paid work after parental leave and older women continued to work. These women tended to work in the female-dominated sectors of health, childcare and eldercare, which led to new types of exposure in the work environment, and other types of symptoms and health problems. New patterns also emerged in sickness absence, with more women than men being sick-listed and alterations in sickness absence following labour market changes, with sick-leave levels being higher in times of good economic situations and lower in times of depression and high unemployment. After the major economic crisis in Sweden in the early 1990s, as described in Chapter 2, the pattern of fluctuations in sickness absence continued, although the association between labour market fluctuations and sickness absence became weaker. The economic crisis forced the government to make major reductions in public spending. To reduce the costs of sickness absence, the government introduced a sick-pay period that was paid by the employer to strengthen their responsibility for workers' sickness absence. After some initial changes in the length of this period, a 14-day period was finally settled upon. Other changes in sickness insurance regulations were compensation days and reduced benefits at the beginning of a sick-leave period.

In times of increasing sickness absence levels, political decisions often focused on tightening rules and regulations. Around the turn of the millennium, Sweden saw a strong increase in both the number of sick-listed people and the number of sick-leave days. The higher levels of sickness absence led to higher economic costs, and several explanations were presented as possible causes for the increase, including the increased number of older women in the labour force, given the higher risk of contracting health problems among older age groups. Other possible causes included an overly generous sickness insurance, deficiencies in physicians' certification practices, and poor working environments in terms of physical demands or low psychological control Duchaine *et al*. 2020).

Working conditions and work-related health

Most previous studies have shown the consequences of hazardous work environments from *micro- and meso-level systems*; that is, the individual workers' conditions and interactions at the workplace. The most commonly used models for understanding and analysing the individual effects of health risks in working conditions are the job demand-control model (Theorell & Karasek 1996), the effort–reward imbalance model (Siegrist 1996) and models of direct

physical and chemical exposures – all in interaction with socio-economic conditions (Rugulies *et al*. 2004). National statistics show that detrimental psychosocial work environments are more common in female-dominated occupations within care sectors than in other industries. The *organisational and workplace context (meso-level)* sets and forms available organisational conditions, demands and resources. Meso-level models incorporating the allocating of organisational resources include frameworks of OHSM that focus on policies, practices and procedures for the protection of worker health and safety. Likewise, *societal resources (macro-level)* have a major impact on forming conditions that are important for patterns and pathways of occupational disorders, especially from a global perspective (Rugulies *et al*. 2004), as became painfully obvious during the COVID-19 pandemic (Lönnroth *et al*. 2020). These systems, at different levels, interplay dynamically and are interlinked. While the more direct links may be observed immediately, some interlinks are better observed over time. Even though analysis of trends is crucial in order to identify polarised patterns of working conditions, trend analyses are still uncommon.

Some studies have indicated that working conditions are largely deteriorating and that inequalities in distributions of working conditions are increasing (Kalleberg 2011; Peugny 2019) or differ between countries (Malard *et al*. 2013). It has been suggested that the reasons for these trends, such as increased inequality in exposure to working conditions, might be found in the last four decades of liberalisation of labour markets accompanied by globalisation and digitalisation (Kalleberg 2011; Peugny 2019). On the other hand, through two surveys of employees in the EU in the 1996–2001 period, Gallie (2005) argued there is no evidence of a general trend towards higher work pressure. Nevertheless, only a few studies have monitored trends in the prevalence of different working conditions (e.g., Malard *et al*. 2013; Cerdas *et al*. 2019; Corin *et al*. 2021).

Studies of trends regarding the prevalence of work-related health, sickness absence and occupational injuries are more common, but are seldom related to macro trends and the development of gaps between good and bad jobs in different sectors. The comprehensive Swedish national statistics show that sickness absence is relatively high among women and in the female-dominated care sector. Other overall trends show increasing life expectancy in Swedish men due to safer work environments, but also more reported occupational disorders and mortality due to injuries compared to women. While life expectancy among Swedish women has stagnated, common mental disorders have increased in self-reported questionnaire data and register-based sickness absence. In 2021, 62 per cent of the 619,000 people who received sickness benefits from the sickness insurance were women.

Method

The results of general and specific trends presented in this chapter were calculated from national statistical databases and the deepened analysis of specific

trends was conducted with data from organisational cohort studies of care workers.

Working conditions were obtained through the Swedish Work Environment Survey (SWES), which consists of a random, stratified representative subsample of employed Swedes between the ages of 16 and 64. The data were collected by telephone interviews and approximately 130 questions about physical and psychosocial working conditions were asked. Ten waves of SWES (1997 to 2015) were used and an aggregated data set on the occupational level was created by using the Swedish Standard Classification of Occupations. Growth curve modelling was used to capture patterns of change in working conditions over time, identifying the starting point in 89 occupations (intercept) as well as both the shape (functional form) and rate of growth (slope) over time. Latent growth curve analysis was used to detect groups of occupations developing in different directions over time.

Incidence of long-term sick leave. This outcome included cases of long-term sick leave; that is, all periods of sick leave that exceeded 90 days. The national statistics were obtained from AFA Insurance. For comparisons, the sum of working time was adjusted to full-time equivalent workers (FTE workers) and calculated per sex, age group, position and occupational groups in female- and male-dominated sectors. The analysis of cross-system and organisational-level explanations of deviating trends was conducted with data from our earlier studies. Municipal conditions regarding organisational changes and reforms and the size of the municipality were investigated by questionnaire data to top managers in each municipality (Szücs *et al*. 2015) and linked to the municipal incidence of long-term sickness absence per 100 FTE workers by the analysed managerial positions.

Occupational disorders. We used registry records from the Swedish Social Insurance Agency for all employees in Sweden who applied for compensation for occupational disorders (injuries and diseases) during 2010–2018. The analysed data cover all reported work-related disorders in Sweden. These data were linked to the population register via the civic number; for each person, Statistics Sweden added data about sex, age and sector. The outcome variable used captured the registered decision of applications of compensation for serious occupational disorders. The probability of getting compensation was modelled by sex, and the proportion of men in the sector and year, by fitting a mixed-model regression model to the data with the lme4 package for R (Bates *et al*. 2015; R Core Team 2024).

The list of *male- and female-dominated sectors* was constructed via the Swedish Standard Industrial Classification (SNI) for employed persons of working age (15–74 years) (Cerdas *et al*. 2019). The male-dominated sectors are working with machines (86 per cent men) and production (77 per cent men). The female-dominated sectors include health, care, and social service (78 per cent women) and education (71 per cent women), while knowledge- and personnel intensive jobs and public administration are gender-mixed.

The *managerial work, OHSM and work conditions* (work overload, hard governance control (NPM), time- and logic conflicts) of first-line managers in the care sector (eldercare and hospital care) were investigated in different projects, and their mean values are shown in Figure 7.9 The data were achieved from projects between 2009 and 2021 (e.g., Dellve and Fällman 2020).

Trends in working conditions

Our results, based on growth curve models covering almost two decades between 1997 and 2015, show that the overall development of job demands and job resources in the Swedish labour market is fairly stable over time (Corin *et al*. 2021). Hence, at this macro level, no radical changes in the working conditions were found, with only some small general changes in job demands and resources over time. However, the results also reveal that the macro-level stability hides highly heterogeneous patterns of change at the meso level, revealing substantial occupational trends within the Swedish labour market. We did not find support for an ongoing upgrading or polarisation of working conditions in the occupational structure. However, a tendency for social polarisation can be observed. The development of working conditions at both the macro level and the meso level, as well as tendencies of social polarisation, will be described in the following section.

General development of job demands and job resources at the macro level

The general macro trends at the aggregated occupational level are particularly salient among the various aspects of job demands with weak but positive trends, resulting in decreasing job demands over time. Significant macro trends were evident in eight out of the 13 included job demands, where five displayed positive trends, one a negative trend, and two nonlinear trends. Workload was the only quantitative demand that clearly improved over time, but with a slight decline in later years. Two of the four cognitive demands (*difficulty of work tasks* and *psychological pressure*) displayed weak improving trends, meaning less difficult and psychologically pressured work. The same held true for two of the three studied physical job demands (*work postures* and *bend and twist*) that was also improving over time, although after initial deterioration. Only emotionally demanding contacts at work displayed a clear negative trend. Figure 7.1 presents the eight job demands with statistically significant trends at the aggregated occupational level.

On the resource side, only two job resources significantly changed at the macro level, with increasing general levels of appreciation from workmates, patients and/or clients. Decision authority regarding when to do work displayed a significant S-shaped development, but with no clear direction over time. The remaining six indicators of job resources displayed no clear macro-level changes over the investigated period. Thus, the job resources vary less over time at the macro level than do job demands, which may indicate that job

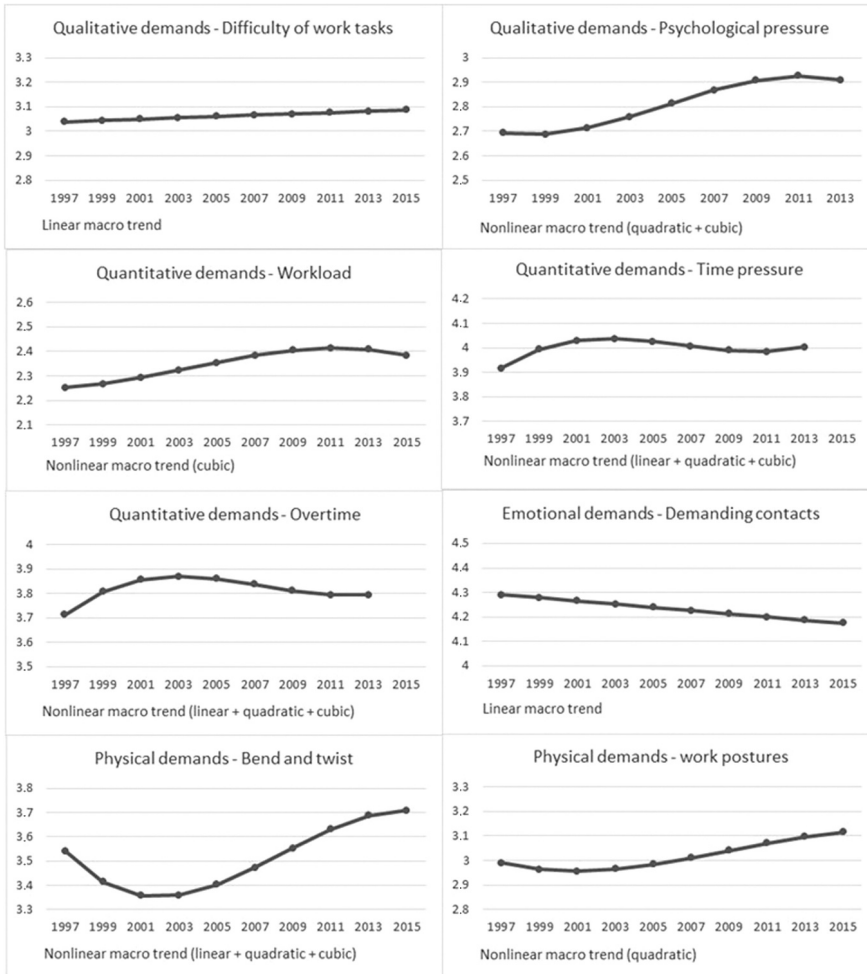

Figure 7.1 Nonlinear and linear macro trends in job demands. A high value implies a favourable development.

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resources are more closely related to factors on levels other than the occupational, such as the industry or workplace level.

Development of job demands and job resources at the occupational meso level

The most important finding of this study (Corin *et al*. 2021) was that the stable macro-level trends were composed of a large variety of heterogeneous meso-trends across occupational groups. Compared with the relatively modest

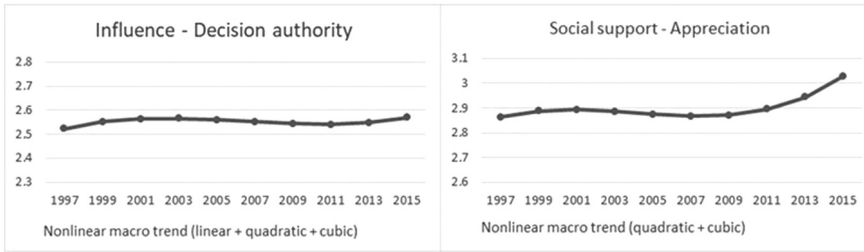

Figure 7.2 Nonlinear and linear macro trends in job resources. A high value implies a favourable development.

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changes at the macro level, changes within occupations were quite substantial. These meso-level trends consisted of both substantial differences in starting points for their occupational trajectories of working conditions and divergent development trends over time in most working conditions. Consequently, experiences of change in the Swedish work environment vary greatly between workers in different occupational groups.

Significant occupational variation was found for the majority (15 out of 21) of the included dimensions of working conditions. Among the job demands, eight (out of 13) working conditions displayed significant variation in development across occupations, including in the domains of cognitive demands (*concentration* and *psychological pressure*), quantitative demands (*work-leisure spill-over* and *time pressure*), emotional demands (*emotional demanding contacts* and *violence and threats*), and physical demands (*work postures* and *bend and twist*).

Meso-trends were also noticeable among most job resources (seven out of eight), including all types of indicators for influence as well as recovery and meaningfulness at work. Social support in terms of appreciation (such as from colleagues and patients) displays a significant meso-trend. Overall, there were great variations in different directions across occupational groups regarding development trends (Corin *et al*. 2021).

Possible tendencies of social polarisations of working conditions

In order to obtain a better understanding of the complex results in the first study (Corin *et al*. 2021), including many timepoints, occupations and job demands and job resources, our second study conducted a more in-depth analysis of these occupational meso-level trends (Corin *et al*. forthcoming).

Initially, the 21 working conditions included in the first study were reduced through explorative factor analysis (EFA), resulting in five overall factors of job demands and job resources: *quantitative demands* (four variables, α = 0.750), *emotional demands* (three variables, α = 0.662), *physical demands* (three variables, α = 0.954), *influence* (five variables, α = 0.914), and *meaningfulness* (two variables, α = 0.883). By means of latent class growth analysis based on

these factors of working conditions, this second study showed that different groups (classes) of occupations developed in divergent directions. The results revealed two to six underlying classes of development trends in the five overall factors of job demands and job resources.

A tendency of social polarisation in terms of widened gaps between occupations in the female- and male-dominated sectors can be discerned. More occupations in the male-dominated sectors (technical) were characterised by high influence that remained stable over time, and by low emotional demands that also diminished over time. There was also a higher and increasing proportion of male-dominated occupations with relatively low quantitative demands, while the low levels of meaningfulness in many male-dominated occupations developed in a more positive direction. Examples of male-dominated occupations with this pattern of working conditions are construction workers, painters and welders. However, there are also several male-dominated occupations with a similar profile as described above but with very low influence in the work situation, such as plant operators and assemblers in industry.

The working conditions for female-dominated occupations tended to be more negative than those for male-dominated occupations. For example, occupations in the care and education sectors, such as preschool teachers, primary school teachers, special teachers, nurses and midwives, had high levels of meaningfulness in their work, albeit with a deteriorating trend. Their level of influence was relatively low, with a negative development (for some groups of teachers), or very low but relatively stable over time (nurses, midwives and primary school teachers). In these occupations, the quantitative demands were often higher but decreased somewhat over time. The emotional demands for the occupations in female-dominated care and education were generally very high, but with a slight improvement trend over time. The physical demands were relatively low (education sectors) or moderate to high (care sectors) but with a positive trend over time.

Trends of sickness absence

We continue by analysing trends in long-term sickness absence since the 1990s. Figures 7.3 and 7.4 show these trends for the period 1998 to 2012. They show clear and persisting gender and age differences from 2003 onward, with more sickness absence among women and older workers than the years before.

Long-term sickness absences were generally higher in female-dominated sectors (care workers) than in male-dominated sectors (technical workers) (Figure 7.5). These results are in line with reports from national authorities showing that sickness absence is higher among women than among men and in the care sector.

However, our results show that one position in particular in the female-dominated care sector – first-line managers – had the highest and strongest increase in long-term sickness absence. Since 2008, when a thorough quality control was made of the coding of managerial positions in the register, the increase in long-term sick leave has been stable. Can this be explained by more

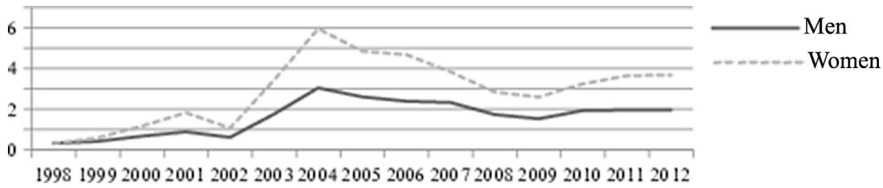

Figure 7.3 Incidence of long-term sickness absence per 100 FTE workers in Sweden, by gender, between 1998 and 2012.

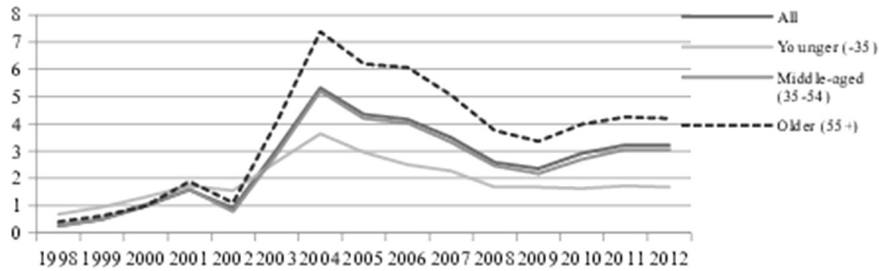

Figure 7.4 Incidence of long-term sickness absence per 100 FTE workers in Sweden, by age group, between 1998 and 2012.

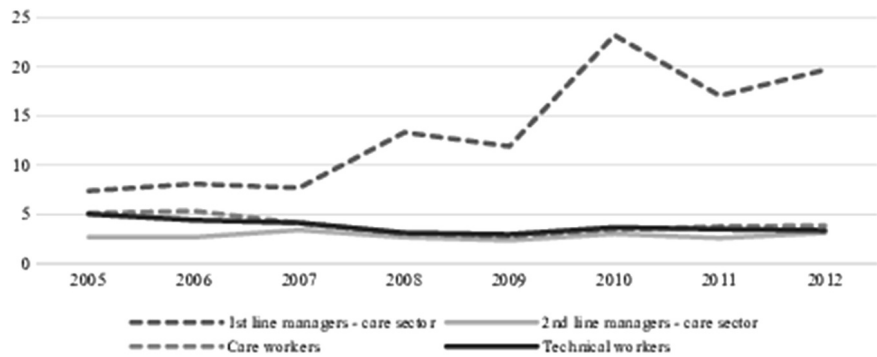

Figure 7.5 Incidence of long-term sickness absence per 100 FTE workers in the Swedish care sector and technical workers.

pressing working conditions for operational managers due to reforms of the sector? We will present results of the analysis of these trends in a later section.

Trends of occupational disorders and compensation

Next, we show figures on occupational disorders and compensation. Overall, the number of applications for compensation for occupational disorders

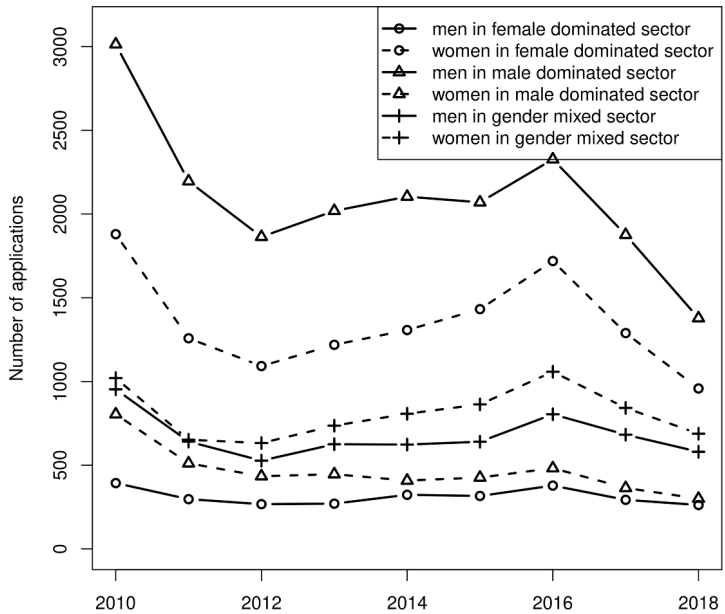

Figure 7.6 Number of applications of compensation for serious occupational injuries and diseases.

decreased (Figure 7.6), and the trends are similar regardless of sector or gender. In line with the national statistical reports (AFA 2023) registered occupational disorders are more common among men.

Of all valid applications for compensation for a serious occupational disorder, 2010–2018, only 17 per cent were approved. Men in male-dominated sectors have had a steady advantage with regard to the approval rates compared to all other categories (Figure 7.7). Figure 7.7 also shows that men in female-dominated sectors have seen the largest decrease in the probability of receiving compensation in all categories.

In the following analysis, we analysed the effect of sex within the same sector. The expected difference in probability of compensation for a man compared to a woman can be conceptualised as a sum of the effect of the distribution of men and women over different sectors, and of the effect of sex within a sector. Using the fitted regression model, we estimate this effect separately for each year. The result of this posterior analysis is shown in Figure 7.8, where the size of this difference is evaluated for a woman, but similar results should arise if it was evaluated for a man or hypothetical person with some non-binary value on sex (Williams 2012).

During the first year of the period under study (2010–2013), the two parts that together make up the total effect of sex were about even in size, with the curves for the respective effects taking turns being on top. However, in the latter half of the period, from 2014 onwards, the between-sectors effect

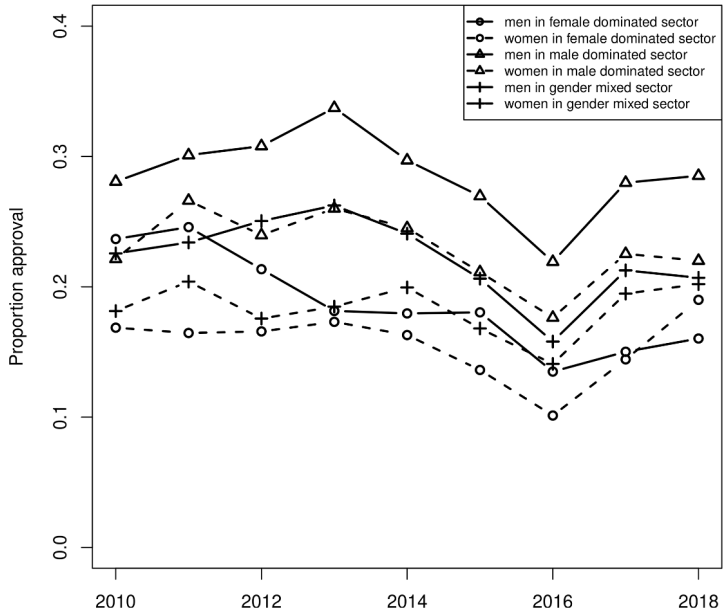

Figure 7.7 Proportion approved applications for compensation due to serious occupational injuries and diseases, among men and women within female-dominated and male-dominated sectors.

increased and the within-sectors effect decreased. This means that the expected difference in the probability of receiving compensation for a man and a woman *in the same type of sector* decreased during the period of study. At the same time, the expected difference in the probability of getting compensation between the male-dominated sector and the female-dominated sector increased.

Explanations of negative trends in female-dominated sectors

Squeezed first-line managers

The trends presented above indicate social polarisation processes with deviating trends in the gender-based sectors. In this section, we add more detailed empirical data at the lower operational levels, from the exhausted care sector.

Above, we showed the increase in long-term sickness absence among first-line managers. Their position has been squeezed since 2005 (e.g., Skagert *et al*. 2008; Corin and Björk 2016). Table 7.1 shows relationships between their long-term sickness absence and New Public Management (NPM) reforms, intensity and frequency of organisational changes, size of municipality, and aspects of communication with employees during the organisational changes. The market solutions in the studied organisations increased continuously throughout the

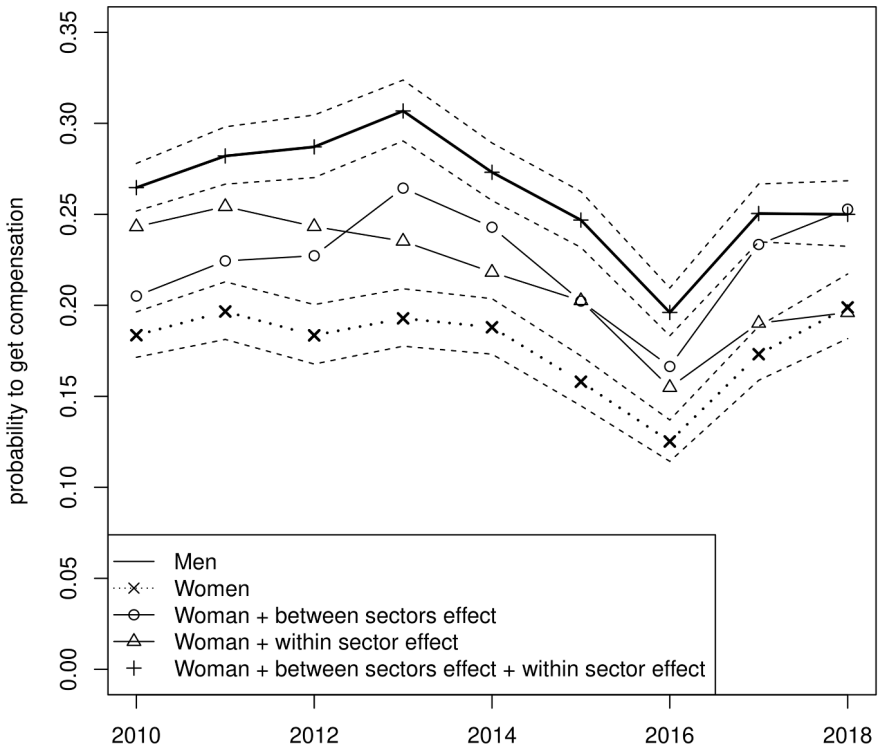

Figure 7.8 Estimated probabilities for approval of applications for compensation due to serious occupational injury or disease, for men and women, and estimated effects of the gendered selection of occupations ("between-sectors effect") and the remaining effect of sex ("within-sector effect"), both evaluated for a hypothetical woman.

2000–2012 period, and the degree of changes clearly increased between 2008 and 2012. The stressors in operative managerial work during the same time are also illustrated in Figure 7.9. Most first-line managers (>85%) rated high time conflicts and conflicting logics, such as working with different tasks of different logics and difficulties prioritising between them. They also rated high levels of work overload and an increasingly difficult governance control (such as NPM). Between 2020 and 2021, the governance control decreased and managers OHSM increased. Instead, trust-based governance of the public sector was implemented.

There were significant ($p < 0.05$) bivariate associations between managers' rating of their management of OHSM for their employees and their work overload ($r = 0.44$), hard governance control ($r = 0.41$) and time and logic conflicts ($r = 0.42$) (assessed in 2020). Thus, the first-line managers' increasingly demanding working conditions during a time with major restructurings of the care sector can, reasonably, also have importance for care sector employees' working conditions and work-related health.

Table 7.1 Importance of characteristics in organisational changes for long-term sickness absence (due to common mental disorders) among managers in the Swedish care sector

	First-line managers	*Top managers*		
	Bivariate r/p-value	*Model B/p-value*	*Bivariate r/p-value*	*Model B/p-value*
Organisational changes (intensity)	0.12/0.05			
Organisational changes (frequency)	0.15/0.01			
Employee protest/voice			0.10/0.09	0.01/0.03
Employee influence via face-to-face communication	-0.11/0.08			
Employee-focused reorganisation	0.10/0.08		0.10/0.09	0.42/0.08
NPM reform 2004			0.16/0.01	
NPM reform 2008			0.22/0.00	0.01/0.01
NPM reform 2012	0.10/0.09	0.10/0.10	0.20/0.00	
Larger municipality (>100,000)	0.25/0.00	0.25/0.00	0.19/0.00	
R2		*0.085*		*0.084*

Notes: Linear regressions

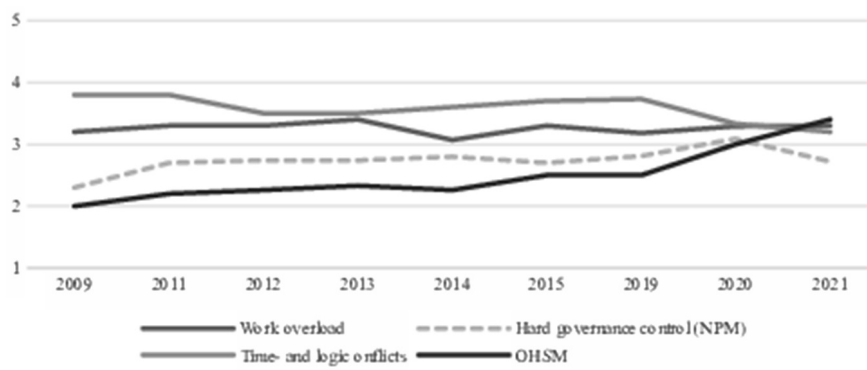

Figure 7.9 Questionnaire data of work overload, hard governance control (NPM), time conflicts and logic conflicts among first-line managers in care sector and their management of OHSM for their employees.

Interlinked explanations

The trends presented are supported by other studies of trends in Sweden. First, different patterns of organisational and management developments were found between different *sectors*. Most favourable developments were seen in high-tech and knowledge-based sectors, and most negative developments took

place in human-related sectors (Härenstam and MOA Research Group, 2005). Cerdas (2019) explored the development of working conditions within and between industries with different gender compositions in Sweden (1991 and 2013) and found a negative development in the care sector.

Second, studies of trends focusing on care workers in Sweden support the findings and provide additional explanations regarding their *working conditions*. In sum, studies show negative trends with high and increasing quantitative, emotional and physical demands, lower decision authority and social support (see Marklund *et al*. 2019; Cerdas *et al*. 2019; Aronsson *et al*. 2021; Corin *et al*. forthcoming). Meaningfulness was higher but had a negative trend (Corin *et al*. forthcoming). Trends of s*ickness absence* have been associated with physical demands, low job control and low support from supervisors (Marklund *et al*. 2019; Aronsson *et al*. 2021; Leineweber *et al*. 2020), and with macro- and meso-organisational conditions such as size of organisation and proportion of workers working full time (Dellve *et al*. 2006).

Third, there are interlinks between care workers' work-related health and supportive organisational structures and operational managers' conditions. First-line managers that were structuring, being present, were not work-overloaded and had good interactions with employees were associated with trends of lower or decreasing sickness absence (Dellve and Fällman 2020). Thus, the shown trends of increasing sickness absence among first-line managers (Figure 7.5), their high work overload and time conflicts (Figure 7.9), as well as being responsible for a high numbers of employees (Wallin *et al*. 2014) during the years of intensive restructuring and rationalisations of care organisations can also have a crucial impact for their employees' work-related health.

System-level explanations of inequalities

Explanations of our results regarding inequalities in compensation of occupational disorders may be interlinked with the poor working conditions, the hard governance control of expenses of the public sector and social insurance, the historical developments of social insurance and OHSM practices. Some studies that have identified such contemporary work system explanations will be listed below.

Macro and meso level: Swedish authorities have indicated gender and occupation differences in achieving compensation (ISF 2011:15; 2019:10). The lack of clarity and uncertainties in assessments of physicians' certificates and the injured workers' description risk making the assessment unequal when the requirement for evidence has become stricter and the evidence burden has shifted to the injured person (ISF 2019; Abelin 2019). This affects people with lower education and/or non-native Swedish speakers (Björk and Hermansson forthcoming) and in health and social care work (SOU 2014:74; Andersson *et al*. 2022).

Organisations' prioritisation of the work environment is important for employees' occupational injuries, health and sick leave (Dellve *et al*. 2008; MacEachen *et al*. 2016). However, conditions for OHSM may differ between

male- and female-dominated jobs and between jobs that mainly concern machines versus humans. Thus, societal norms can be shaped by social position through the individual's activity and knowledge, the working groups' understanding of occupational injuries, OHSM, resources to use social insurance and the work of trade unions and management in these matters. For example, care workers have expressed that injuries in their high-risk work are, in a way, part of the career choices made in life, and if work injuries would be reported, a supportive organisational culture is required (Dellve and Hallberg 2008). One factor that may obstruct equal development concerns the assumptions about the employees' and employers' shared interests (Tengelin *et al.* 2022). The different interests interact and shape power relations and access to resources by different logics and assumptions about workers and the employer's behaviours and management (MacEachen *et al.* 2016). Thus, the social position can be crucial for the ability of *individuals and work groups* to prioritise safety in their work management, to support individuals to report occupational disorders (Dellve and Hallberg 2008) and apply for compensation; that is, to obtain and submit relevant certificates, request information, detect and protest any shortcomings in the processing and re-apply in the event of rejection (Björk and Hermansson forthcoming). This can ultimately affect the outcome of the application for a compensation, even though the processing can formally be said to have taken place following current regulations.

Conclusions

While the trend in the general population was in somewhat positive directions, this chapter showed and focused on the divergent patterns with declining working conditions over time, higher sickness absence and lower compensation for occupational disorders among women and in female-dominated sectors of the labour market compared to among men and in male-dominated sectors. The negative trends for women and in female-dominated occupations have multifactorial explanations that have been developed over time through multidimensional interrelated demands and resources at work. The larger lines over time and patterns support the conclusions of social polarisation. Thus, there are clear signs of social polarisation, while there was no support for general labour market polarisation in working conditions.

To explain the social polarisation, the systems approach and theoretical understanding of OHSM needs to be better interlinked with gender theories of social and cultural structures maintaining social practice and norms (Connell 1987) and norm-critical perspectives (Samulowitz *et al.* 2018). Also, a historical perspective is needed to understand present differences and social inequalities. Adding the time perspective to the systems perspective provides a longer time horizon and deeper understanding of trends and decisions (Krieger 2004).

History shows that men and women have had various entrances and connections to the paid labour market since the Second World War. Sweden's economically advantaged position after the Second World War led to a historical

exception, with working-class women not being involved in paid work outside the home. This housewife period then transformed into the development of a Swedish low-paid public welfare sector. Political decisions, public organisations' interests and union struggles have maintained and reinforced these differences. The high female work participation is an important feature of the development and maintenance of Sweden's welfare society, but shaped the traditional gendered division of work (such as care work). The strong rise in public services has had implications for welfare, the construction of female work, and now also societies' desires for a prolonged work participation among women. Maintenance over time to the gendered, social polarisation of working conditions and work-related health is driven by both women and men, but also by institutionalised and informal power structures.

In this chapter, we have given extra focus to the care workers whose trends diverged most negatively from others, both regarding working conditions and compensation for occupational disorders. The care sector is still one of the most segregated sectors and the largest occupation groups belong to the lowest SES groups, which have fewer career opportunities and lower job flexibility and a high proportion of part-time jobs and non-native workers. Nevertheless, most data on work and health have been collected among workers employed as wage-earners working in workplaces in their country of permanent residence. This restriction neglects the assessment of working conditions by various types of precarious employment contracts and work arrangements crossing borders. Studies have shown persisting patterns of inequalities due to intersectionality in terms of gender, migrant workers, low-skilled jobs and work-related health conditions disorders (Ekbrand and Dellve 2024; Chen *et al*. 2023).

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8 Exploring mechanisms behind polarisation

Digitalisation and flexibilisation in manufacturing companies

Anna Hedenus and Erica Nordlander

Introduction

Most studies of occupational change and polarisation explore changes in wages, occupations and employment at an aggregated level (see Chapters 3, 4, and 6). However, it is at the organisational level that these changes are first displayed when organisations introduce digital solutions, flexible practices, and re-organise. Thereby, these local practices constitute underlying mechanisms for polarisation manifested at a macro level. Thus, exploring occupational changes within companies may help explain *how* polarisation is established.

As both flexibilisation and digitalisation influence the organisation of work, new distinctions between groups of workers risk underpinning polarisation. For instance, through the increased use of temporary employment, flexibilisation might involve the creation of 'insiders' – that is, workers on open-ended contracts – and 'outsiders', as in people who have difficulty attaining long-term employment (e.g., Lindbeck and Snower 2001; Svalund and Berglund 2018). Polarisation may also be the result of a work organisation that produces new dividing lines in the job structure, deriving from, for instance, digital production methods and the subsequent creation of new jobs, work tasks and occupations. Here, digitalisation is suggested to move the occupational structure in the direction of upgrading/upskilling (e.g., Katz and Murphy 1992; Oesch 2013) or polarisation (e.g., Autor *et al.* 2003; Goos and Manning 2007; Acemoglu and Autor 2011).

Research on polarisation often focuses on occupational changes and transfers between industries. However, this explanatory model relies on a rather techno-deterministic notion, setting aside other changes that are simultaneously taking place within the industry. Whereas Chapter 9 illustrates how polarisation enfolds in the 'new' organisation of labour in platform companies, the present chapter focuses on the potentially polarising changes that are taking place in more traditional work organisations.

The chapter includes qualitative, interview data collected at workplace level in three Swedish manufacturing companies. Manufacturing is often presented as an industry that is highly exposed to substitution of humans with technology. Hence, this chapter discusses how both digitalisation and flexibilisation

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affect the organisation of work at the company level, and how these processes relate to overall labour market changes and polarisation tendencies.

The interaction of digitalisation and flexibilisation

Polarisation, and its relation to both digitalisation and flexibilisation, have been previously and thoroughly studied using a variety of methodological approaches. Several of these studies are introduced in previous chapters. Therefore, this section attends to research that points to the interaction of these different phenomena, beginning with the organisational model of 'Industry 4.0'. The section ends by introducing the central concepts used in the chapter and illustrating how they are interrelated (Figure 8.1).

Discussions regarding how to implement the technological solutions of Industry 4.0, and more lately the agile organisation of 'Industry 5.0', are vivid among both companies and researchers (Bednar and Welch 2020; Xu *et al*. 2021). Digitalisation constitutes a core element of the organisational model of Industry 4.0/5.0, which also highlights flexible production and the need for functional flexibility and upskilling (Xu *et al*. 2021). Within Industry 4.0/5.0, digitalisation is often implemented along with the ideas of 'Lean manufacturing'. Applying digital technologies enhances the lean production systems, resulting in a 'lean augmentation', and facilitates the flexibility required to cut usage of resources and stay competitive (Buer *et al*. 2018; Charrua-Santos *et al*. 2020; Mokudai *et al*. 2021). Moreover, the use of digital technology is always affected by the users and the various solutions provided by the technology (e.g., Orlikowski 2007; Leonardi 2011). Thus, as Crittenden *et al*. (2019) suggested, many workers today work with both flexible routines and flexible technologies.

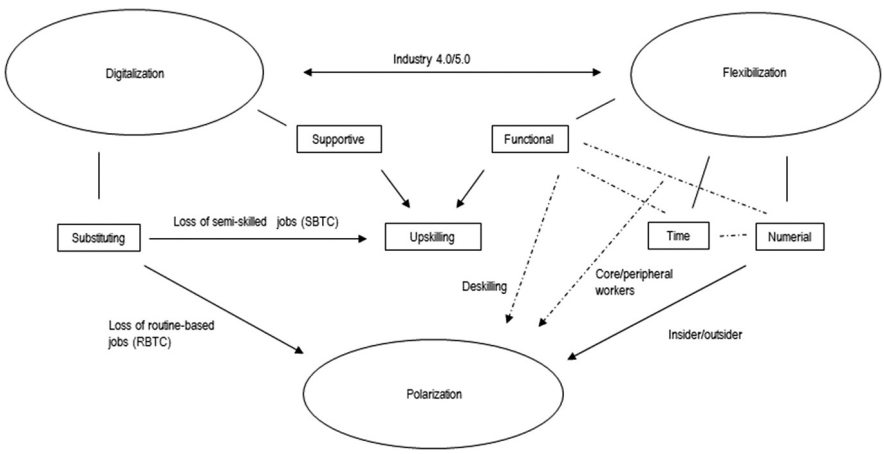

Figure 8.1 Interrelations among digitalisation, flexibilisation and polarisation.

Flexibilisation and digitalisation may both involve the process of upskilling of personnel. For instance, functional flexibility may involve upskilling required to manage and monitor digital processes, or upskilling may be required for reallocating workers whose previous work tasks have disappeared due to digitalisation. Upskilling, following digitalisation, is explained through the skill-biased technological change theory (SBTC), which proposes that it is primarily low-skilled jobs that are substituted by technology (e.g., Oesch 2013). However, the present chapter explores upskilling as an outcome of both digitalisation and flexibilisation (see Figure 8.1). Thus, it is not only technological change that affects the skills demanded in organisations, but also their overall organisational model.

The theory of routine-biased technological change (RBTC) also deals with digitalisation and its effects on jobs, but suggests that it is routine semi-skilled jobs that digital technologies tend to replace, which leads to polarisation rather than upskilling (e.g., Autor *et al*. 2003; Goos and Manning 2007). Acemoglu and Restrepo (2019) added to this by stressing the role of task displacement; that is, when 'old', routinised tasks and skills are replaced by 'new', and often lower-paid, tasks. Thus, rather than pushing for upskilling, digitalisation may involve deskilling or reskilling instead.

These technology-focused theories have been criticised for overlooking the importance of contextual factors, such as managerial strategies, organisation of skills, and socio-material conditions (such as process complexity and product variety) (see Krzywdzinski 2022), which also add to skill and occupational needs. By focusing on differences at the organisational level, the variety of outcomes from digitalisation can be better explained.

Finally, and regardless of technological changes, flexibilisation appears to have effects in terms of polarisation. According to previous research (Berglund *et al*. 2017), the most insecure forms of temporary contracts (such as on-call workers) have continued to increase, while the most secure ones (that is, substitutes) have decreased. This study shows that on-call workers also have lower chances of moving from temporary to permanent employment. In a description of companies' flexibility strategies, Atkinson (1984) argued that the combination of numerical and functional flexibility may lead companies to differentiate between core and peripheral workers. While employees on open-ended contracts are upskilled, provide functional flexibility to the company, and get to perform more qualified work, fixed-term employees (FTEs) are used to attain numerical flexibility and are more likely to be assigned simpler tasks. Similarly, Berglund et al. (2022) found polarisation tendencies in employment, where the growth of low-paid jobs consists of temporary contracts, while the increase of high-paid jobs foremost consists of open-ended contracts.

Central concepts

The central concepts in this chapter are *digitalisation, flexibilisation and polarisation*. The concepts represent general and societal processes and are, in turn, linked to several sub-concepts that are more applicable for capturing

local practices. To begin with, *digitalisation* concerns a wide range of different technologies and processes, affecting various dimensions of both organisational and production practices (see Crittenden *et al.* 2019; Rolandsson and Dølvik 2021). The present chapter distinguishes between digitalisation in production, quality control, administration and management, and product and process development. Furthermore, drawing upon the notions of labour-displacing or labour-augmenting effects of technology (Autor and Salomons, 2018), the concepts of *substituting or supportive* digitalisation have been applied.

Regarding *flexibilisation*, it is primarily flexibility that is to the employers' advantage that has been explored (for an overview of various flexibility concepts, see Jonsson 2007). This involves strategies construed to enhance the organisations' capability to adapt to changes in staffing and production methods (such as internal flexibility), as well as consumer demands or production levels (such as external flexibility) (Qamar *et al.*, 2018). Table 8.1 presents the flexibility strategies in focus.

Discussions of the potential consequences of digitalisation and flexibilisation have primarily been done using the concepts of bi-polarisation and social polarisation (see Chapter 1). *Bi-polarisation* is used to analyse changes in jobs, work tasks and required competencies, altering the distance between low- and high-skilled workers. *Social polarisation* is applied to elaborate on the power relation between employees on open-ended versus fixed-term contracts (sometimes also referred to as 'dualisation'; e.g., Berglund *et al.* 2023). In addition, we sometimes refer to value polarisation (see Chapter 1), as an indicator of shifts in how valuable resources (such as status and salaries) are distributed.

Table 8.1 Types of flexibility strategies

Strategy type	*Numerical*	*Work time*	*Functional*
Strategical activity	Temporary employees	Scheduling	Work rotation
		Shift work	Distributed competences
		Working hours	Team-based organisations
		Work pace	
		Time banks	
Outcome	Sufficient staffing when production is high or individual workers are absent, without having to pay salaries – or fire people – when production is low	Sufficient staffing when necessary, less over-staffing during less productive periods or hours	Makes production less vulnerable to individual workers being absent, but also makes the organisation of work more flexible

Figure 8.1 illustrates some of the mentioned relationships between these concepts, although more connections could be visualised. For instance, worktime flexibility may also be related directly to polarisation in that such flexibility may favour different groups of workers unequally (Jonsson 2007).

When acting upon strategies of both digitalisation and flexibilisation, the organisational outcome might involve an upskilling of personnel, but it also involves the risk of increased polarisation between different groups of workers. As Figure 8.1 shows, the relationships between various forms of flexibility are complex, which is why this will be given somewhat more attention in the analysis.

Method

All three case companies belong to the manufacturing industry, but differ in product type and digitalisation efforts. The companies also vary in organisational structures, types of production, qualification requirements, and dominant staffing strategies (see Table 8.2).

Semi-structured interviews were conducted with 17 interviewees, including managers at different levels, specialists/white-collar workers, union representatives and blue-collar workers. The conversations were recorded and transcribed in detail.

Reflecting indicators of polarisation used by Oesch and Piccitto (2019), the questions touched upon potential changes to wages, required skills and competence, occupational status and work conditions. Moreover, attention was paid to which jobs increase or decrease, which jobs are defined as core tasks or assigned to flexible employment, and which jobs and tasks digital solutions tend to augment or substitute.

Analysing the data, an initial and open coding of a small sample of the interviews was followed by a focused coding – on the topics of digitalisation, staffing and flexibility – of the whole material. The findings presented in this chapter build upon a previous and more thorough analysis of the data (Hedenus and Nordlander 2022).

Contextualised processes

Table 8.2 presents an overview of some distinguishing characteristics of the case companies and their digitalisation and flexibilisation strategies. Strategic differences were accounted for, in relation to contextual conditions for the companies: type of production, economic resources, competitive position on the market, existing competence, number of employees, domination of white- or blue-collar workers. Based on these characteristics and differences, the companies are labelled accordingly: *Digitalised assembly line industry* (DALI); *Manual assembly production* (MAP); *Specialised engineering assembly* (SEA).

Table 8.2 Characteristics of the cases

	Digitalised Assembly Line Industry (DALI)	*Manual Assembly Production (MAP)*	*Specialised Engineering Assembly (SEA)*
General	Mechanical workshop	Vehicle industry	Vehicle industry
	Production of large series of many similar products	Manual production (craftmanship) with small, custom-made series	Small series of specialised and customised products. High quality demands.
	Shifting production levels	Shifting production levels	Stabile production levels
	Domination of blue-collar workers	Domination of blue-collar workers	Domination of white-collar workers
Digitalisation	Substituting digitalisation of production		Substituting digitalisation of production
		Supportive digitalisation in production and quality control	Supportive digitalisation in all other areas
Flexibilisation	Numerical flexibility	Numerical flexibility	Numerical flexibility (among white- collar workers)
	Work time flexibility	Work time flexibility	Work time flexibility
	Functional flexibility	Some functional flexibility	Functional flexibility

Digitalisation

The three case companies represent a variety of company contexts, digitalisation strategies, implemented solutions, and outcomes of the changes that have been made. In both DALI and SEA, investing in digital technologies and products is motivated by the need to remain competitive and to keep up the number of jobs, in a market where Swedish companies have difficulty competing with low-salary countries. The production site of DALI functions as a pilot for the whole concern, with extensive restructuration of production, full automatisation, and the removal of all repetitive work tasks as explicit goals. As SEA have a much larger share of white-collar workers, their desire to both attract younger employees and retain current employees emerges as another motive for digital initiatives. The third company, MAP, represents a company in which the craftsmanship of production is highlighted as continuously essential and, with its very low-key strategies on digitalisation, the company thereby differs from the other two cases.

Looking at what changes these strategies have involved, the digitalisation at MAP has entailed very modest changes: switching from assembling instructions

on paper in favour of digital instructions on tablets and computerised quality controls. The interviewees emphasise that little has changed in production since the 1970s, so digitalisation at MAP has a clear support function, rather than a substitution function. At DALI and SEA, the digitalisation strategies have had much more disruptive effects and much of the digital technology used in these two companies can be described as substituting. For instance, one of DALI's digitalisation investments led to a reduction of personnel by 60 per cent, which was managed by (1) people leaving the organisation due to retirement or other causes, (2) reduced need to hire new personnel, and (3) reallocation. Similarly, SEA's digitalisation efforts involve moving towards more automated production with an increase of 'ghost hours' when the machines operate on their own and are monitored from a distance. Although some jobs have been substituted, manual monitoring of production is still necessary, not least because of the high-quality requirements. SEA is also the case company that has introduced most digital solutions for quality control, administration and management, communication, and development. Therefore, the efforts made in SEA have the widest range of digitalisations efforts that also fill a clear supporting role.

So, which groups of workers are mainly substituted by digital technology in these companies? According to the theory of RBTC, it would primarily be semi-skilled, routine jobs that are substituted by new technology while manual, non-routine tasks stay relatively untouched by technological advances (Autor *et al*. 2003; Acemoglu and Autor 2011). This theory is corroborated by findings from the three cases. At MAP, production is mainly manual, yet not routine-based, which prevents it from further digitalisation. At SEA, although the work tasks for blue-collar workers are highly routine-based, the high-quality demands make it difficult to fully substitute humans with technology. This illustrates what Krzywdzinski (2022) described as an organisation where individual tasks are routinised, yet the production process is still highly complex. Therefore, SEA and MAP provide good illustrations of companies where it is hard to substitute the complex mode of production with digital tools; and at SEA, digitalisation is closely associated with more qualified work tasks and upskilling. DALI, on the other hand, is characterised by most routine-based work, as well as the highest levels of substituting digitalisation.

However, changes at DALI seem to support the SBTC theory (Oesch 2013) as digitalisation has called for upskilling among the remaining staff. As mentioned, reallocation was part of DALI's strategy for managing personnel that had been redundant following digitalisation. The following quote, from one of the employer representatives, illustrates how digitalisation thereby contributes to changed staffing needs as well as upskilling:

IP1:2: The two production lines replaced the previous four or five lines, with relatively high staffing. So, we move in a direction where the traditional blue-collar jobs, to stand and [perform manual tasks], disappear. At the same time, there is an increased need for white-collar workers who can manage the systems.

Flexibilisation

In all cases, *numerical flexibility* is used to manage changing production demands, competence needs, and short-term absence among ordinary employees. MAP's need responds to a high fluctuation in production with changing needs of personnel, varying from around 10 per cent temporary agency workers (TAW) in low periods to about 40 per cent TAW in high periods. In addition, the use of temporary workers is economically motivated by their – relative to the other case companies – limited economic resources and the threat of global competition and outsourcing.

Also at DALI, fluctuations in production call for high numerical flexibility. However, the explicit intent is that all temporary employees should be offered a permanent position when available, and their contracts can, according to the collective agreement, only be terminated for lack of work on the whole production site. Following this agreement means that even FTEs are replaced with substitutes if they go on parental or study leave. In addition, white-collar consultants are used for various developmental projects in computing and engineering.

SEA is different in that the company has a unique market position, with very little competition. Consequently, it can plan for stable and continuous production levels and numerical flexibility is less prioritised. In production, the use of numerical flexibility is further hindered by long learning periods (approximately three years) related to the high quality standards. Still, changes in demand and production levels sometimes appear, which calls for temporary staffing. The company's goal is that 5–10 per cent of the total staff in production should be TAW, although this number is currently much lower since many staff were let go due to the pandemic. SEA also makes extensive use of consulting engineers for product and process development projects.

Within the three companies, the use of temporary employees is regulated by local collective agreements that stipulate both restrictions on and acceptance of the use of temporary workers. For the unions, agreeing to some numerical flexibility can facilitate a successful negotiation for limited use of temporary contracts.

In contrast, and especially in cases when the management primarily rely on numerical flexibility, regulations of numerical flexibility may come with the price of increased worktime flexibility or functional flexibility, or both. For instance, during recent flexibility negotiations at MAP, the company's positive attitude to agency workers was used as leverage by the employers to attain their goals on *worktime flexibility*. This is illustrated in the quotations below, from a management and a union representative, respectively:

IP2:1: We've reached a new flexibility agreement with the workers union. And you might say that this was our counter-weapon in the negotiation: that we, at that time, had almost 40 per cent agency workers. So, I said: 'Until we have reached an agreement, we will not hire a

single person. If we can't come to terms on a new flexibility agreement, from now on, there will only be agency workers adding to the staff.'

…

IP2:3: We managed to achieve a limitation as to how many temporary workers there can be, in relation to the number of employees. In return, we no longer have a fixed schedule for days off. Instead, the employer has authority to schedule free time any day of the week, essentially. And to assign half-days.

All of the case companies apply multiple forms of worktime flexibility, such as shift work, time banks, paid 'stop days', and adjustments to the work pace. This is cost-efficient for the employers, but could involve very strenuous schedules and shifts for the employees. On the other hand, and especially for white-collar workers, it may also involve higher levels of control over one's working hours and a higher salary. One of the managers at SEA, a company that often recruits new employees with high qualifications, stresses this as being attractive to new personnel:

IP3:2: Starting from the first of April, our agreements have been changed and modernised, to attract people instead of making them feel bored or controlled. So now we have bought overtime, so they get a higher salary. […] Before, it was all about working for eight hours. Now, you do your job.

Interviewer: It's non-regulated working hours?

IP3:2: Exactly. So, if you need to work a little extra one day, fine, then you do it, because you've been paid for it.

Turning, then, to strategies providing *functional flexibility*, all cases apply a team-based organisation and work rotation in production. Employees are encouraged to develop a wide-spread distribution of skills and competencies to master several different balances or machines. Especially in DALI and SEA, functional flexibility has been further encouraged with the digitalisation of production and Lean manufacturing, where operators can handle different machines/stations simultaneously and rotate in between. When everyone works on the same digitalised system, tasks become increasingly complex, with also blue-collar work requiring higher skills. The subsequent upskilling sometimes involves a blurred distinction to the white-collar, technicians' job. This point is illustrated by an interviewee from DALI:

IP1:1: So, these systems, like SAP for example … The truck drivers, they work in it, the operators work in it, those who are in the supply chain work in it and the managers also work in it. And the boundaries between what you do aren't as clear as before.

However, to ensure that all teams are fully staffed with necessary competence, functional flexibility often requires strategies of numerical flexibility. For instance, DALI employs temporary workers that have previously been with the company or are studying at the affiliated college. Moreover, numerical flexibility facilitates the attainment of functional flexibility by allowing employees to be replaced by substitutes while in education and training.

By contrast, the lack of numerical flexibility means that, in times of crisis and personnel reductions, the company will risk losing necessary competence. The will to avoid competence loss, firings and hirings then motivates the use of TAW. When talking about the consequences of the COVID-19 pandemic, a respondent from the management of SEA illustrates this dilemma as follows:

IP3:2: Most of them were laid off, and that's not what we want, because then it's [the legislated rule on] 'last in-first out' that applies. And these are the young, eager, skilled talents that we've picked up, and who we don't want to lose, those who know where we are going.

[….]

IP3:2: And many of those we notified have now returned. But then there are also many who have got new jobs, and it is the best ones who get new jobs. Of course.

Interviewer 1: So there is a loss of competence?

IP3:2: Yes. And then we hire new ones, and we must train them as well.

Although the ambition at both DALI and SEA is to use temporary workers who are already trained for the tasks, there are still a substantial number who do not have the required competencies. Using temporary workers thus involves an introduction period. Hence, there is an ongoing discussion, at both DALI and SEA, about splitting jobs so that simpler tasks can be executed by temporary workers. As one of the union representatives at DALI stressed, this would mean that the functional flexibility and group-based organisation would be undermined:

IP1:3: [The company] has also opened for, for example, others to come in and work, but we have not yet used it. And I personally think it would be very difficult. Of course, if we were to have temporary tasks to turn components or something, but in daily production … It is so skill-based.

At SEA, the union and first-line managers are similarly critical, and with the same argument used at DALI: that it conflicts with the strive for a wider range of tasks and competencies for the individual employee. Here, blue-collar workers are said to enjoy functional flexibility as it provides the employees with a larger variety of tasks, and better opportunities to develop and to feel needed in the organisation.

This distinction between more and less qualified tasks, aimed at regular and temporary workers, respectively, is applied at MAP. Functional flexibility is still upheld for the regular employees as an ideal that all competence should be found among the regular workers in the teams. At the same time, functional flexibility is restricted due to many employees' unwillingness to pick up new tasks and competencies. Although the intention is for TAW to perform the simpler work tasks, many of the TAW have worked for the company for many years and required both experience and competence. Due to the need to fill vacancies in the rotation, there are several exceptions whereby temporary workers have been able to carry out more advanced tasks. Thus, in practice, temporary workers can come to perform the same tasks as employees with open-ended contracts.

Also at SEA, functional flexibility is somewhat limited due to the company's effort to uphold distinctions between blue- and white-collar jobs and responsibilities. One of the union representatives described how production stops if the technicians are not in place, even when the issue is simple enough for the operators to solve themselves. According to the interviewee, to increase functional flexibility, some of the white-collar tasks could be delegated to the blue-collar side:

Ip3:7: It would be necessary to distribute certain white-collar tasks to the blue-collar side, if you look at it in terms of production.

The main counterargument to suggestions for a redistribution of tasks across the blue- and white-collar line, is SEA's high-quality standards with subsequent issues of accountability and responsibility placed on different groups of workers.

Processes of polarisation

How do organisational actions taken to accomplish digitalisation and flexibility influence occupational changes? This section switches the focus from the strategies used to the outcomes within the cases, especially social polarisation and bi-polarisation, and the potential impact of these outcomes on an aggregated level. As Table 8.3. shows, the three cases illustrate tendencies for polarisation within the organisations, albeit not in any coherent way. That is, change processes aiming for increased flexibilisation and digitalisation both counteract and reinforce each other, as well as provide different combinations of outcomes.

Digitalisation and flexibilisation involves reorganisation of work and the integration of new tasks to be executed. Many employees – although far from all – welcome these new tasks, such as problem-solving and working with various forms of software. The more qualified tasks require competence development and subsequent upskilling of employees.

For others, however, such changes constitute new obstacles to overcome. In some cases, employees will be moved into early retirement or reallocated to less

Table 8.3 Actions and outcomes of digitalisation and flexibilisation strategies *(actual outcomes marked with checks)*

		Action/change			*Outcome*
DALI	**Digitalisation**		Retirements	√	Bi-polarisation
			Reallocation		Social polarisation
			Reduced need for numerical flexibility		Deskilling
			Increased rotation and functional flexibility	√	Reskilling
				√	Upskilling
	Flexibilisation	*Numerical*	FTEs and on-call workers		Bi-polarisation
		Functional	Potential job splitting		Social polarisation
			Group-based organisation with a wide-spread skill distribution	√	Deskilling (potential)
		Work time	Shift work with flexibility for both long & short shifts	√	Reskilling
			Time bank	√	Upskilling
MAP	**Digitalisation**		No changes		
	Flexibilisation	*Numerical*	Extensive use of TAW	√	Bi-polarisation
		Functional	Job splitting	√	Social polarisation
			Increased rotation	√	Deskilling
		Work time	Scheduling	√	Reskilling (modest, for workers on open-ended contracts)
			Time banks	√	Upskilling (modest, for workers on open-ended contracts)
			Stop days		

SEA	**Digitalisation**		Increased rotation and functional flexibility		Bi-polarisation
			More qualified work tasks		Social polarisation
					Deskilling
					Reskilling
				√	Upskilling
	Flexibilisation	*Numerical*	FTEs and TAWs used sparsely, but potential for increased use	√	Bi-polarisation
			White-collar consultants	√	Social polarisation
		Functional	Potential job splitting	√	Deskilling (potential for temps)
			Increased rotation	√	Reskilling
		Work time	Shift work with flexibility for number of shifts	√	Upskilling (for workers on open-ended contracts)
			Time banks		

demanding jobs, operating machines that have not yet been replaced by newer, digitalised systems. For this group of workers, the changes involve reskilling rather than upskilling. Less-qualified jobs may also be actively created with the attempt to single out work tasks that can be executed by temporary workers who have fewer prior skills and experience. Thereby, key competence is kept 'in-house' while also minimising the risk of having overly high labour costs (cf. Svalund and Berglund 2018).

This situation points to a *bi-polarisation* of workers, as tasks have evolved into both more complex and more simple jobs that involve both upskilling and deskilling of blue-collar workers. As salaries are partly set in relation to competencies, which also leads to a higher wage gap between those with and without necessary competencies; that is, value polarisation. Moreover, worktime flexibility produces unequally rewarding conditions for different groups of workers, further adding to tendencies of bi-polarisation.

However, the deskilling strategy seems to be restrained by the need for broad competencies within team-based organisations, the insufficient motivation for competence development among regular employees, and the need and desire to upskill among temporary workers. With modest digitalisation and upskilling, the polarising effects of this deskilling practice are weak.

Using the concept of *social polarisation* instead, attention is directed to the effects of organisational practices that produce qualitative distinctions between groups of workers. This process is closely interrelated with some of the changes presented as examples of bi-polarisation. When jobs and work tasks are split into more and less qualified jobs, and the less-qualified tasks are directed to temporary employees, this tends to divide workers into 'A teams' and 'B teams'. In the following quotation, one of the managers illustrates the distinction between 'core' competences and 'supporting' competences:

IP3:2: We concluded that our workers should work with the core competencies, and the rest are supporting competencies, which we also need, but are much easier to bring in.

Discussions about how 'our' workers attend to the core tasks, while 'supporting' competencies can be 'brought in', create a clear distinction between insiders and outsiders within the organisation. However, one permanent employee expressed a more egalitarian view and claimed that such distinctions do not work if everyone should be working together as a team:

IP2:5: It's not that we treat them condescendingly or anything. Because we heard it from themselves, that they've been in places where they [are met with an attitude of] 'Yes, but you're only hired, so do as you are told'. That doesn't work when we are a team and need to get the product assembled within a certain time. Then you have to treat everyone equally.

There is a clear correlation between the companies' policies on temporary workers and investments in all workers' competence and skills development. When temporary workers are hired to carry out simpler tasks, they are generally offered only basic training, as one manager elaborated on:

Interviewer: What type of training is it, then, that is only given to permanent employees?

IP3:4: Probably something that is more adding to … that develops the individual forward in some way. Because, if you have a [TAW] for five months, you may not invest in that kind of one-year development program. But things that they need, here and now, to be able to do their work in a good and safe way. Of course, we need to provide that. But it's these investments in the future that you maybe don't put on a resource that you only have for a certain, fixed time.

Thus, it is 'the investments in the future' that are not available for temporary employees. The individual worker then primarily attains the competencies needed for the specific job and workplace, while not developing general competencies that could increase their opportunities for fixed-term, and potentially more qualified, jobs, trapping them into an outsider position.

The union expressed that this use of less-qualified workers is an unfortunate situation for both the TAW whose competences are not taken care of and developed and for the company and the employees who need to spend too much time on training new colleagues:

IP2:3: There are drawbacks with many of our workers being TAW, coming and going. It's a lot of training of these people. They are swapped. And, as an employee and operator, you feel that is tough as hell: 'Now I'm supposed to train one, again. Hell, I trained one just a few weeks ago, and now it's another one.' And then this repeats itself.

However, to counter a division into A and B teams, there are several ways to act for the integration of temporary workers: similar competence requirements for temporary staff as for regular employees, same opportunities for competence development, and similar rights for leaves of absence.

Thus, different contractual status involves different expectations of functional flexibility and wide competencies. On one hand, there is the idea of delegating simpler tasks to TAW or other FTE, and prioritising competence development for those with open-ended contracts. On the other hand, the demands on functional flexibility are often higher on TAW, making them 'chase knowledge and balances'. As there are no restrictions to the duration of TAW, attaining more competence is not necessarily a way to achieve an open-ended position. However, as the following quote shows, good achievements

may provide the individual worker with job security without the employment security of an open-ended contract:

IP3:2: On the technical side, there is a guy who has probably been there for 10–15 years, an engineer. So, if they only get their foot in the door, and perform well, they can stay.

Attaining more and wider competencies is a way for temporary workers to compete for long-term or open-ended positions with the companies.

In contrast, it is the workers on open-ended contracts who have the positional power to resist work rotation and upskilling:

Interviewer: Is it the case that not everyone in the team [perform all various tasks], that only some do? Or how does it work?
IP2:4: No. It depends a little on how far you have come in training, such as how long you have been here, of course. Then there are some, who just want to be in one place.
Interviewer: And that is also okay?
IP2:4: Yes. It has become okay for some.

In this quote, the interviewee speaks of 'some who just want to be in one place', referring to regular employees who prefer to perform a restricted number of tasks. By stating that this 'has become okay for some', the interviewee is showing that although this is not in accordance with what is generally expected, exceptions are made for certain individuals.

The use of temporary employment is described as being – to some extent – unavoidable and necessary. At the same time, such numeric flexibility is often restricted through local agreements and other strategies to achieve flexibility are therefore presented as preferable. Interestingly, the interviewees talked about these restrictions in relation to social relations within the organisation rather than to the labour market position. The interviewees felt it is important for the temporary workers to feel they are part of the team, rather than conceding their lack of employment security. This is illustrated by the quotes below from a union representative, a permanent employee, and a manager, respectively:

IP1:3: It is very sad that some of our members may feel that – of course they feel that – they would have been better off if they had been permanently employed. But the security is the same.
IP2:5: We have received positive feedback [from our TAW] just because we don't treat them differently. For me, a TAW is worth just as much; he or she has just as much responsibility as I do. It's just that they have the misfortune of being employed by an agency.
IP3:2: We try to treat everyone as if they were ours, and it's only when there's notice that we don't handle them as ours.

As these quotations (representing all three cases) illustrate, the emphasis is placed on equal treatment while the risk of losing one's job is presented as less important. The interviewees expressed that it is 'only' when giving notice that the temporary workers are not handled as regular employees and that the security 'is the same'. One interviewee (IP 2:5) came close to admitting the worse position for the temporary workers but acknowledged no responsibility for the company for this situation. Instead, he presented the contractual status of the TAW as a 'misfortune'.

In conclusion, indications of bi-polarisation were found in all three cases, resulting from either deskilling versus upskilling due to digitalisation and flexibilisation, or due to digitalisation substituting routine-based jobs. Moreover, two of three cases also provide examples of social polarisation, as the working staff is grouped into permanent versus temporary employees, representing core and supporting competencies, respectively.

Concluding discussion

The findings corroborate a lot of previous research. Two of the case companies, SEA and DALI, applied strategies for both digitalisation and flexibilisation, following the ideals of Industry 4.0/5.0 (Xu *et al*. 2021). In these companies, digitalisation has also involved the upskilling of employees, which was anticipated based on the theory of SBTC (Oesch 2013), as well as notions of Industry 4.0 (Xu *et al*. 2021). Upskilling is pushed by digitalisation but may also, like digitalisation, be motivated by other factors (cf. Krzywdzinski 2022). For instance, attempts to achieve functional flexibility, group-based organisation of work, and Lean manufacturing constitute other management ideals that add to the organisational needs for competence development (Buer *et al*. 2018).

As illustrated in this chapter, processes of digitalisation and flexibilisation are highly interrelated, as are the various forms of flexibility as well as the effects of polarisation. For example, functional flexibility is facilitated by the presence of numerical flexibility and also pushed by restricted numerical flexibility. It is further driven by digitalisation, involves upskilling, and counteracts bi-polarisation as tasks are being rotated. Functional flexibility often also hinders social polarisation because all workers, regardless of their contractual status, are doing similar tasks.

However, the outcome of functional flexibility in combination with numerical flexibility can also increase social polarisation (Duclos and Taptué 2015) within the organisation, as the workforce is distinguished into 'our workers' (permanent employees) and 'the rest' (temporary employees). When jobs are split into more/less qualified tasks, to facilitate the use of temporary employees, this underpins both social and value polarisation. That is, it is the jobs with weaker employment protection that also are low-skilled, have lower status and, supposedly, lower wages (Berglund *et al*. 2022).

If job splitting and partial deskilling involve fewer opportunities for competence development, this risks further strengthening social polarisation by prolonging temporary workers' position as 'outsiders', as they then have fewer possibilities to improve their employability. This would indicate an upskilling within the companies, but with tendencies for bi-polarisation when focusing on which tasks are kept in-house and which are given to temporary employees. If using similar indicators as Oesch and Piccitto (2019), such upskilling may also involve improved work conditions, which adds to bi-polarisation as it only benefits in-house personnel. Similarly, those employees who are granted competence development may be rewarded with higher wages and higher status, which would involve increased value polarisation.

Although the case analysis provides support for SBTC and upskilling, it also points to situations when digitalisation and flexibilisation risk leading to an increased polarisation within the organisations. Based on these findings SBTC could be criticised for being too focused on upskilling as contradictory to polarisation, which may be an effect of focusing too narrowly on the outcomes of technological changes. However, if other organisational changes and contextual factors are considered, upskilling may still be present, despite not being the sole outcome. If upskilling is combined with numerical and functional flexibility, including job splitting and deskilling for groups of workers, it may also lead to polarisation. Studying both bi-polarisation and social polarisation further helps discern these double and simultaneous processes.

While the analysis and findings in this chapter discuss potential polarisation at the workplace level, such polarisation is likely to also reflect on processes at the labour market level; for instance, by adding to weaker employability and lower wages for temporary employees that attain less competence development, and by higher wages for those workers who favour upskilling.

This chapter has illustrated how processes of digitalisation, flexibilisation and polarisation are intertwined. Treating them as separate and distinct is likely to provide a much-simplified description of their status and expected development, leaving matters of context and interrelated processes unattended. Instead, to arrive at an understanding of the direction of the transformations of the Swedish labour market, there is a need for a theoretical framework and methodological measures that better capture this complexity.

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9 Riding the Waves of Precarity

Understanding the Impact of Platform Work in Food Delivery

Sophie Banasiak and Kristin Jesnes

Introduction

A polarised labour market implies an increase at both the top and the bottom of the wage distribution. From 2000 until 2015, Sweden experienced small growth in low-paid occupations such as personal care, housekeeping, restaurant and delivery jobs, including bike or moped delivery (see Chapter 3). During the last decade, 'platform companies' have increasingly mediated several of these low-paid jobs. Platform companies such as Uber, Deliveroo and Foodora provide a digital infrastructure, often in the form of an application, for mediating services between customers and workers, who are classified either as self-employed or with non-standard forms of employment. These platform companies expanded their operations throughout Europe and in the Nordic countries after the financial crisis (2008–2012), and the poor working conditions in these jobs have received growing attention (Tassinari and Maccarrone 2020). We argue that if this form of work spreads in low-paid occupations without being regulated through collective agreements and/or through legal enforcement, app-based food delivery might feed into trends towards a more polarised labour market.

In the Nordic countries, as well as across the globe, platform companies have had the most success with their business model in transportation and food delivery (Jesnes and Oppegaard 2020). Delivery via bike and moped has become a prominent feature on the streets. While delivery workers across the globe have protested the poor working conditions and low pay of the platform companies, there are cases of collective agreements being negotiated for food delivery workers in the Nordic countries (Jesnes and Oppegaard 2020; Trappmann *et al*. 2020; Banasiak 2021), which might indicate a 'counter movement' against precariousness (Polanyi 1957) in the form of union organising and collective agreement coverage.

In this chapter, we explore the case of app-based food delivery, Foodora, which signed a collective agreement with the Swedish Transport Workers' Union in 2021 after an intense mobilisation of couriers (Banasiak 2021). We ask: How do Foodora workers, in this context, experience their working

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conditions? Does this form of platform work contribute to a trend of polarisation, and can this trend be countered by workers?

The remainder of this chapter is structured as follows. First, we review previous research on platform work and introduce our theoretical approach using the concept of precarious work. Second, we outline the data and methods of the study. Third, we present the results and our analysis before we make a concluding discussion.

Platform work and precarious work

Although figures are challenging to estimate due to unclear definitions and populations that are hard to reach, surveys indicate that between 1 and 3 per cent of paid work in advanced economies is platform work (Schwellnus *et al.* 2019). In Sweden, it was estimated in 2017 that about 2.5 per cent of the working-age population performed work via an app (SOU 2017: 24). This estimate is dated and might have changed significantly with the surge in deliveries during the pandemic. Research shows that the typical platform worker is a young, educated, male migrant who has fewer years in the labour market than the average worker (Pesole *et al.* 2018; Schwellnus *et al.* 2019). While platform work serves as a supplementary source of income for most people, some heavily rely on this form of work for a living (Pesole *et al.* 2018). The majority of platform workers also conduct work on more than one platform; this is often referred to as multiple job holding (Pesole *et al.* 2018; Ilsøe *et al.* 2021).

However, there are important variations between platform companies. De Stefano (2016) distinguished between 'crowd work' and 'on-demand work via app', also referred to as a distinction between online platform work and location-based platform work, respectively. Location-based platform work, particularly transportation and food delivery, has become the most widespread form of platform work in continental Europe and has dominated debates on the future of work (Vandaele 2020). Online platform work has not become so widespread in the Nordic countries, probably due to the high costs of labour (Jesnes and Oppegaard 2020; see Chapters 2–3). Several scholars have also suggested that there are limits to the 'Uberisation' of high-skilled work due to the complexity and/or length of work tasks or the demands of the customers, which suggests that there are other dynamics in place in high-skilled platform work compared to low-skilled work (Azzellini *et al.* 2019; Jarrahi *et al.* 2020; Nesheim and Jesnes 2022).

An important issue in the debate concerning platform work is the misclassification of workers as self-employed and what rights and benefits platform workers should have access to. Although some platform companies classify workers as self-employed, the workers might still be employees from a legal point of view (Hotvedt *et al.* 2020). For instance, the platform companies use data gathered through the digital infrastructure to guide, evaluate and sanction the workers. This is often referred to as 'algorithmic management'

(Lee *et al*. 2015), which, according to the European Commission, conceals 'the existence of subordination and control' (European Commission 2021: 2). This is why the European Commission is currently working on a directive that attempts to clarify whether the platform workers are, in reality, employees rather than self-employed, with the attendant rights and benefits (European Commission 2021).

Although platform work may be a source of income for students and migrant workers who lack opportunities in the labour market, the working conditions tend to be lower than expected standards. The workers are often paid per task conducted, must provide their own work equipment, and the company does not provide a fixed workplace. The platform workers lack job and income insecurity and have limited access to labour rights and benefits (Jesnes 2019). The companies can easily scale business up and down by offering easy access jobs that require little formal skills and training to a crowd of workers; thus, when demand is low, the workers lose the possibility for income. Therefore, platform work is described as the 'last frontier of precariousness' (Tassinari and Maccarrone 2020).

The concept of precarious work appears to be highly relevant for apprehending how working conditions in the platform delivery sector manifest a lower position in a polarised labour market. There is no consensual definition regarding what constitutes precarious work. However, based on a systematic review of studies using the concept, Kreshpaj *et al*. (2019) proposed a conceptualisation with three dimensions: employment insecurity, income inadequacy, and lack of rights and protection. Employment insecurity refers to insecure contractual relations (e.g., employment through an agency, self-employment), contractual temporariness (e.g., fixed-term contract, 'on demand' contracts, seasonal employment, frequent job changes), or underemployment (part-time work). Income inadequacy concerns the hourly wage, monthly salary or annual income, and inadequacy can be estimated in relation to national standards for poverty line, minimum wage or median income. Income inadequacy may originate from its instability as well. The third dimension – lack of rights and protection – is related to the lack of union protection, social security, regulatory support and workplace rights that may result in workers' inability to secure decent working conditions.

Precarious work implies workers' loss of control over their work-life – in other words, increased management control and discretion (Quinlan *et al*. 2016). However, workers' attempts to regain control, notably through union organising, may counter this loss of control. In that sense, precarisation should be understood in view of what feeds and opposes the development of this phenomenon. Labour process theory and revitalisation research highlight the tension between management control and workers' resistance (Edwards 1979) and between labour commodification and countermovement (Polanyi 1957). Thus, precarity does not define a static condition, a given characteristic of some labour market segments, but instead manifests deep and dynamic antagonisms at the workplace and in society, as the present analysis will show.

Data and methods

Our analysis primarily builds on data collected from April to June 2021 regarding the union organising process at Foodora, for a case study conducted by Banasiak (2021). Semi-structured in-depth interviews that lasted approximately 1.5 hours were conducted with three bicycle couriers from two cities and six union officials at the central and local levels. In all, there were nine participants, who were all key actors in the organising process and/or the negotiations conducted with Foodora. Two of the participants were women (one bicycle courier and one union official). The three bicycle couriers had a migrant background and came from high-income countries (none were from Asia). The participants were recruited through the union, social media and by way of snowballing.

It was relatively difficult to get access to workers due to their time constraints as they were busy both with work and activism. Still, both workers' and union officials' perspectives were included to hear 'different voices' (Creswell 2007: 206) and participants had diverse experiences that could 'shed light' on different aspects of the case (Graneheim and Lundman 2004:109). In the interviews, which were conducted after Foodora signed the Couriers and the Transport collective agreements in February 2021, questions were asked about participants' backgrounds, working conditions and the organising process. The empirical material also includes the reported results of a survey on working conditions among Foodora bicycle couriers conducted by the Transport Workers' Union (2021). The survey was circulated in January 2021 in a closed Facebook group for Foodora couriers, which was administered by Transport Workers' Union's members and at the time included about 400 couriers, 137 of whom completed the survey. At the time of the survey, the union estimated that Foodora employed around 2000 couriers in Sweden. Other documentary sources, such as collective agreements, media reports, labour legislation and case law, were examined.

Initial codes from previous coding of interviews' transcriptions were selected depending on their relevance to the topic of working conditions and were analysed by using thematic analysis (Braun and Clarke 2006). Following an abductive approach, the analysis was empirically grounded but guided to some extent by the 'sensitizing concepts' (Charmaz 2006; Reichertz 2019) of precarious work, control, resistance, commodification and countermovement. The analysis of Foodora bicycle couriers' working conditions resulted in seven main categories, which are described in the following section.

Findings

Atypical and insecure employment

In contrast to other platform companies, Foodora employs bicycle couriers rather than using self-employed workers, but on short-term and part-time

contracts. The interviewees' narratives emphasise that the prevalence of short-term contracts – from one month to three months – and part-time work – usually between five and 10 hours – is a source of deep insecurity for workers due to unstable income:

> The main problem with Foodora is the short-term contract. It is not the same to earn 150 SEK per hour with a full-time job that guarantees you 40 hours a week and certain job stability … as it is to earn 150 SEK working for Foodora, but … having very few hours guaranteed per week – between five and 10 hours and no more – and having this short-term contract. You have a job today, but you know that the company does not even need to provide you a reason to end your contract the following week. I think that this is one of the toughest things. Unfortunately, it has not been regulated in the collective agreement because the law allows it. I would say that's the worst … Right now, riders are numbers that can just be disposed of at any time.
>
> (*Bicycle courier 1*)

The survey by the Transport Workers' Union (2021) showed that 85 per cent of the respondents had short-term employment, 67 per cent had worked at the company for less than 12 months, 68 per cent had contracts with a maximum of 20 hours a week, and the same proportion would have liked to work more at Foodora if they could. Furthermore, 53 per cent worked for more than one employer, as Foodora did not give them enough work shifts for a decent income and they needed a 'back-up' plan in case they lose their job. By contrast, we may notice that, in the Swedish labour market in 2020, about 15 per cent of employees have temporary employment, 22 per cent work part-time, 14 per cent work part-time for less than 30 hours per week in their main job, and 8 per cent employees hold multiple jobs (Eurostat 2023a, b; OECD.Stat 2023a, b).

In a context where Foodora develops its activity and is constantly hiring, the use of short-term contracts is perceived as deeply unfair. Thus, only a few workers have permanent contracts and, according to several participants, the company does not renew the short-term contracts of workers so that it can avoid giving permanent contracts, which workers by law were entitled to after two years (§5a, Employment Protection Act (1982:80)). However, the labour legislation overall is not considered supportive by the participants, as it is liberal concerning the use of fixed-term and temporary contracts. Indeed, employers are allowed by law to recruit workers on so-called 'general fixed-term employment' without any justification (§5, Employment Protection Act (1982:80)). A union official highlighted:

> No, [the legislation] is not supportive because (…) it is okay with short-term contracts. This is a problem. In Norway, they did not have that problem; they had long-term contracts for the riders, and they could

> organise and not be afraid of losing their contracts. The legislation is not good in Sweden because it allows short-term contracts.
>
> (*Union official 1*)

Low income

Foodora bicycle couriers' earnings are another element of precarity as they are very low, notably due to part-time contracts. A courier who works 20 hours – which is the maximum for 68 per cent of the couriers according to Transport Workers' Union's (2021) survey – with an hourly wage of 150 SEK, would earn 12,990 SEK. If this courier works 10 hours, which is usual according to participants' narratives, s/he would earn 6495 SEK. In both cases, this is far from the median monthly total earned income in Sweden (involving no recalculation to full wage), which was 28,658 SEK per month in 2020 (SCB 2023). Such low income heavily constrains couriers' everyday spending:

> When you work at Foodora you begin to count … because your income is based on hourly wage and deliveries … You do not have much to spare when you pay your rent and pay for food.
>
> (*Bicycle courier 2*)

The low level of income not only weighs on the standard of living but also further jeopardises economic security due to not being able to save money.

Part-time status appears to be particularly problematic for migrants working on temporary residence permits. The Migration Agency (2022) requires them to earn at least 13,000 SEK per month and this requirement has to be fulfilled through only one contract; it cannot be fulfilled through holding multiple jobs. Foodora bicycle couriers could only reach this level of income by working more than 20 hours, according to our previous calculations, which for most of them appears not to be the case. A courier highlighted this difficulty:

> A lot of people who want a residence permit are required to work a lot of hours. They cannot survive on ten hours [a week]; they are required to work more than that. But there is nothing in the collective agreement saying that for people who need it. They should be able to work more hours.
>
> (*Bicycle courier 3*)

According to a union official, Foodora would prefer part-time instead of full-time contracts to have a larger workforce, which ensures quicker deliveries to customers.

Straining and unsafe working conditions

Participants described working conditions at Foodora as poor, tough and deviating from usual standards. The bicycle couriers work alone and outside and

are exposed to rough weather conditions and accidents. They must invest in their own equipment, such as phones and bikes. The couriers carry heavy delivery bags (up to 10 kg) and are under high time pressure as their income also depends on the number of deliveries. They must move quickly and may therefore experience a high level of stress and risk dangerous accidents by breaking traffic laws. One bicycle courier described this situation as follows:

> It is a lonely job, you are deprived of many standards … you do not go to an office, you use your own equipment including your phone. Mostly, [there is no] reimbursement if something happens to [the equipment]. It is a very stressful productivity-driven job. You are constantly thinking about how quick you have to be, and you are constantly rating how quick you are and how much money you make so traffic laws are regularly broken … Although it is part-time work, it is extremely time-consuming and tiring.
>
> (*Bicycle courier 2*)

Before the collective agreement, the media also described the time pressure and how the average number of deliveries would determine contract renewal or non-renewal, and eventual access to a permanent contract. Thus, a courier who performed fewer than three deliveries per hour would have to leave Foodora (Rinman 2020). It was further reported that a statistical report was sent to the couriers every week with their performance in comparison with other couriers (Pettersson 2020).

Several interventions by the Swedish Work Environment Authority shed light on serious problems related to work management in the company. In 2017, Foodora was fined by the authority for not reporting accidents (Wallenberg 2017). The accident rate that Foodora later reported is high compared to the average. In 2020, Foodora had 185 accidents from a workforce of no more 3000 (Boström 2021), rendering at least 61.6 occupational accidents per 1000 employees, compared to 19.3 occupational accidents per 1000 employees across all of Sweden (Arbetsmiljöverket 2021).

The Work Environment Authority also criticised the company for a lack of equipment and safety measures, access to facilities, poor ergonomics (heavy loads), lack of prevention of threats, violence, stress and traffic accidents, and for putting pressure on its employees to work quickly (Björkman 2019; Ivarsson 2020; SVD 2021; Dagens Industry 2021). In 2018, the authority threatened Foodora with an injunction for refusing to pay for winter tyres, following a demand from a safety representative at the company (Björkman 2018; Boström 2019). The same issue remained three years later due to the delayed provision of winter tyres. Also, broken helmets have not been replaced (Flood 2021). In addition, the survey conducted by the Transport Workers' Union (2021) indicated that 39 per cent of respondents experienced violence at work. Couriers may be exposed to a high level of violence when performing deliveries: physical attacks, thefts and gun threats have been reported by the media (Boström 2021).

Management control, hostility and abuse

A strong feature in participants' narratives is the importance of surveillance and direct control of an abusive character exerted by management. Surveillance is exerted on each courier through the app and on eventual digital interactions *between* couriers through the company's channel of communication, which they may use, for example, to exchange shifts. Couriers' activity is highly controlled, not only by the imperative of productivity, but also through direct managerial control. Thus, a union official reported that the bicycle couriers are under constant surveillance and lack autonomy, and may be refused permission to take any break during their shifts:

> Another issue is the feeling that somebody is controlling you all the time. Foodora can see what you are doing constantly; this is psychologically very hard for them, that Foodora can see everything they do, when they were somewhere … I have heard that, during Ramadan, some of the riders are fasting and they ask the dispatcher … 'Please could I just break my fast? It would just take 10 minutes. I am very hungry I need to break my fast', and they are like, 'No, no it is not okay, you cannot do that.'
>
> (*Union official 2*)

High levels of surveillance and control are also reported in the media, where working for Foodora is described as being a slave to the algorithm (Pettersson 2020). First, bicycle couriers have limited ability to decline orders. If a courier does not accept an order via the app, he or she will receive an automatic call with a robotic voice saying, 'accept your order'. If the courier still does not accept, a real person calls to convey the same message (Söderberg 2022; DOM nr 45/22). Second, bicycle couriers have no information about where the food is to be delivered before it is picked up. However, Foodora measures and controls how quickly the couriers react to accept an order, pick up the food, and deliver it to the customer. If the couriers do not deliver on time, there will be signals from the app and warnings from management. If this happens too often, the contract will not be extended (Pettersson 2020).

Participants' narratives also emphasise management through the algorithm of the app, which is not made transparent to the union or the bicycle couriers. In Germany, this algorithm is defined by the parent company Delivery Hero, which Foodora Sweden uses as an argument to reject any discussion on this management tool that largely determines the bicycle couriers' working conditions.

> When we tried to point out things about the application, they always referred to Germany, like we cannot fix this because it has to be discussed with Germany. But the application is maybe the most important part of our work, so it has been really frustrating.
>
> (*Bicycle courier 3*)

Managerial abuses have been reported in terms of a lack of voice for the bicycle couriers, as illustrated prior to the collective agreement by several changes in the work organisation (lengthening of delivery distances following the merger with Hungry Delivery in 2019, or an increase in the assignments of 'riders captains' (team leaders) in 2020) without any prior information to the affected workers. Some bicycle couriers participating in the study report a feeling of unfair treatment. They all explained that, before they turned to the union, they had tried unsuccessfully to improve the working conditions from inside the company by talking to the management.

Management abuses also manifest in hostility towards union organising, which further limits the voice of bicycle couriers. Thus, the threat of management retaliation has constituted an important constraint on organising even after the company started negotiating with the union in January 2020. Management hostility may dissuade workers from getting involved. Before the collective agreement, the fear of management retaliation obliged the union and those who were involved to organise secretly. Informal staff representatives appointed by the union were kept secret until the signature of the collective agreement. The networks through which the bicycle couriers organised themselves were constituted by word of mouth, based on prior trustful relations rather than openly. Even though this norm of secrecy seems to have been alleviated after the collective agreement was reached, management repression continues to be a threat to bicycle couriers. Some participants report cases of management repression through contract termination or non-renewal that concerns them directly and/or some of their colleagues. The theme of management retaliation is recurrent within and across participants' narratives. Feelings of fear and anxiety are expressed, showing its deep and pervasive impact:

> It is a cause of anxiety because I feel like the company itself could interfere at any time or let me go or try to find a way to find me. I know people who have been very involved in the unionisation process have got in trouble with the company and have faced termination. It is a thing that can lead to a lot of anxiety and isolation.
>
> (*Bicycle courier 2*)

The above quotation is from a bicycle courier with a permanent contract, and the study shows that secure employees are not spared from retaliatory contract termination. In that regard, it has been reported in the media that Foodora threatened long-term employees with dismissal if they did not accept new contracts with wages aligned to the minimal provisions of the collective agreement, which would mean they would be cut by 40–50 per cent. The union explained that the collective agreement provides minimal terms and allows for better conditions in the contracts. One of the concerned bicycle couriers described Foodora's threat as an attempt to break them in retaliation for their involvement with the union (Langseth 2021). Meanwhile, bicycle couriers with

short-term contracts are even more exposed to management retaliation through discretionary non-renewal of their contracts, which is why their organising is even more hindered. Thus, the participants highlighted the intersection between precarious employment and management control and retaliation. Another intersection may be found with the workforce's background and low level of organising, which makes them vulnerable and disempowered vis-à-vis exploiting management strategies.

A vulnerable workforce

The survey conducted by the Transport Workers' Union (2021) showed that 54 per cent of the respondents were studying while working for Foodora. Moreover, only 28 per cent of the respondents were born in Sweden, whereas 19 per cent were born in another European country and 53 per cent were born outside Europe. This suggests that almost three-quarters of the bicycle couriers have a migrant background and that a significant proportion are students, which gives a vulnerable profile to the workforce. Participants' narratives, in particular, underline workers' predominant migrant background. A bicycle courier emphasised the high proportion of workers from Asia and explained that many migrant workers may crucially lack knowledge about labour legislation and frameworks for collective action in Sweden:

> In Stockholm, it is about 70 per cent of Bangladeshis or from Pakistan. Not many people know about the labour legislation and the conditions in Sweden.
>
> (*Bicycle courier 2*)

The participants indicate that migrant workers may be extremely vulnerable due to their lack of knowledge of the role of unions and collective agreement in the Swedish labour market. Some union officials further explained that workers who do not have a permanent work permit may be afraid of being sent out of the country if they organise, and there is also a linguistic barrier.

Overall, the vulnerability of the workforce appears to be strongly interlinked with their low level of union organising. Before the organising process, there were only a few unionised members. In addition to the lack of knowledge of unions, participants pointed out other hindrances to union organising, such as employer hostility towards the union, the lack of a common fixed workplace and the high level of management control on digital interactions that do not allow for interactions for union organising purposes. Further, the low income of bicycle couriers may make it difficult to pay the fee for union membership. Short-term contracts may also decrease workers' interest in organising, as there is an increased risk of management retaliation through contract termination, and recruitment efforts are undermined by the high level of turnover. Altogether, this constrains union organising and makes the workforce vulnerable to management abuses.

Social marginalisation

Thus, participants observe a contrast between the social standards that the Swedish society provides for most of its workers and the situation of platform workers, which led to some of them expressing a feeling of social marginalisation:

> The situation with gig workers seems like a black sheep, which is not addressed in Sweden as it should be, and it seems irregular of the global reputation […]. People don't really talk to riders when we are working; we are seen like a lower class in a way.
>
> (*Bicycle courier 2*)

In some of the bicycle couriers' narratives, customers are blamed for validating, through their purchases and search for the cheapest option, a system based on the platform workers' intense exploitation and mistreatment. Beyond that, it seems to some of the couriers that society as a whole tolerates their conditions by not taking action to offer them the same standards as other workers. A similar perspective is expressed by a union official, who pointed to a process of dehumanisation:

> People can buy something from companies that do not have good conditions; that's a new thing in Sweden. I don't think everyone sees people as people, I don't think it's good.
>
> (*Union official 3*)

However, society is inhabited by contradictions, and it is acknowledged that the organising process was facilitated by media and societal attention and expectation from the society that Foodora signs a collective agreement.

Collective agreement and union organising: a countermovement opposing polarisation?

The couriers' collective agreement, signed by Foodora in 2021, introduced several guarantees, including a fixed hourly wage, a fixed premium for each delivery, an increased fixed allowance for deliveries performed in the evening or at night and at weekends, and a supplement for the costs of bicycles and other equipment. Further, Foodora bicycle couriers now have the same contractual pension, vacation pay and insurance as other transport workers. They were also guaranteed a pay rise in 2022 (Lindkvist 2021). Moreover, the signature of the collective agreement means that, by law, the company must inform the union about any changes in the work organisation (§11, Co-Determination Act (1976:580)).

However, the collective agreement may not have changed the working conditions a lot, which has generated frustration among some bicycle couriers. The most important organising outcome may be the collective power gained by

the bicycle couriers through increased and active union membership, which one bicycle courier emphasised as follows:

> The situation now has not changed much since the collective agreement, for everyday work; but I think that the good thing now is that every union member has union support because there is a collective agreement that Foodora must comply with, so there is a baseline, and it cannot get worse than that, so I think that is really good … The most important thing about organising ourselves is that now the union is stronger so whenever there is an issue that can arise at the company, the union has more members at the company so they can feel it and Foodora knows that they represent much more workers when they talk.
>
> (*Bicycle courier 1*)

Participants see future challenges as huge, concerning securing employment contracts, improvement of the salary level, protection against management retaliation, and, overall, normalisation of working conditions in Foodora in line with Swedish standards. Participants' narratives further touch upon issues beyond the strict frame of the company. Foodora operates in a highly competitive sector where other platform companies use self-employment and impose even worse working conditions. This also constrains the efficiency of collective negotiations. The Transport Workers' Union did not want to use the most radical tools, such as (sympathy) strikes, for fear of Foodora leaving Sweden and workers having to work for other platform companies with worse conditions. Therefore, the union's priority was to negotiate a collective agreement that could eventually be extended to the rest of the app-based food delivery industry. However, the widespread use of self-employment by other companies is a strong limitation of this strategy.

Another limitation highlighted by participants' narratives is that Foodora uses 'sister companies' that are part of the same group (Allabolag 2023a, b, c) but are not covered by the collective agreement. At the time this study was conducted, this was the case with Hungry Delivery, which employs workers performing deliveries by car under the Foodora brand. One year after the collective agreement was reached, the Swedish association GigWatch (2022), a nongovernmental organisation examining the gig economy, estimated that half of the people who work for Foodora do not have a collective agreement, which represents an important increase in the proportion of workers who are not covered. This includes the 2000 car couriers employed through the company DH Logistics (formerly Hungry Delivery), and the warehouse staff employed by Delivery Hero Dmart in the dark stores (distribution centres) established in several Swedish cities, using the Foodora Markets concept. Both DH Logistics and Delivery Hero Dmart have the same CEO/VD, board, and address as Foodora. Their employees are not covered by the collective agreement and have worse conditions than the couriers employed by Foodora. They are paid a very low income that is only based on the number of deliveries and

kilometres, and may not be paid at all when they do not get a delivery (Antonsson 2021b). Also, Foodora's use of a staffing company to employ moped couriers represents another aspect of the company's strategies to circumvent the collective agreement (DOM nr 45/22; Söderberg 2022).

Concluding discussion

The present study highlights the poor working conditions experienced by couriers in Foodora that deviates from the prevalent standards in the Swedish labour market and thus manifests a lower position in a Swedish labour market that is showing tendencies of polarisation (see Chapter 3). The insecure employment and low income of bicycle couriers, and their lack of rights and protection, including exposure to hazardous conditions and lack of union protection, are typical of precarious work (Kreshpaj *et al*. 2019). Foodora couriers face important difficulties in raising their voices and are subjected to a high level of management control. The control exerted by management includes a particular use of technology that may be described as 'digital Taylorism', in combination with non-standard forms of employment (Veen *et al*. 2020). The precarious working conditions of food delivery workers are also highlighted in other studies conducted in Sweden (Weidenstedt *et al*. 2020; Newlands 2022). Working as a courier is typically perceived as a short-term job until alternative opportunities arise. However, this is not the reality for many migrant workers, who have limited options in the labour market, which leads them to stay in this job for longer than anticipated (Newlands 2022).

The development of labour precarity shown in the Foodora case appears to be part of broader trends in the Swedish labour market, which, in particular, have involved temporary work deregulation over several decades and increasing atypical employment (Svalund *et al*. 2018; Berglund *et al*. 2022) – which previous research shows is negatively associated with union membership (Ebbinghaus 2006; Visser 2006; Nergaard and Stokke 2007). Additionally, reforms of the Swedish union-administrated unemployment funds have affected their role in the unionisation of precarious workers (Bruhn *et al*. 2013; Magnusson 2018). As the present study shows, the lack of unionisation is an important dimension of labour precarity (Kreshpaj *et al*. 2019) as this makes workers less able to defend their rights and working conditions.

The work organisation in Foodora exhibits several features disempowering workers. Foodora couriers are isolated due to spatial dispersion (Vandaele 2020) and a high level of managerial surveillance that constrains their interactions through the company's digital channel of communication. For those who have no secure rights to permanent residence, the risk of deportation makes them highly dependent on provision of work by the employer, which illustrates how the migration regime may interact with labour market precarity (Standing 2016; Riordan *et al*. 2022). Migrant workers' lack of knowledge about unions is exploited in a context of labour market segmentation that typically weakens the effect of the social custom for unionising (Grimshaw *et al*. 2017; Refslund

2021; Weidenstedt *et al*. 2020; Newlands 2022). Thus, Foodora couriers' experiences of precarity may be situated at the intersection of micro- and macro-level social conditions that involve management attitudes, work organisation, labour market deregulation and segmentation, migration regime and decreased institutional support for unions.

Meanwhile, Foodora, which directly employs bicycle couriers, is a particular case among the app-based food delivery companies that usually outsource the risks and costs of work to self-employed workers. In this context, couriers and the union had the right to organise and were able to mobilise and negotiate. Resulting regulatory improvements and increased collective worker power may potentially decrease management discretion, diminish the workforce's vulnerability, and open the way to better working conditions in the long run. This, to some extent, manifests a countermovement (Polanyi 1957) against precarisation and social marginalisation. In the Foodora case, the present study highlights trends towards and against polarisation that oppose through a process whose outcomes appear highly undetermined due to the company's retaliative and circumventing strategies.

In a context where direct employment and collective agreement coverage distinguishes Foodora from other companies in the Swedish platform food-delivery sector, the present study suggests that working conditions are not better, and probably worse, in other platform food-delivery companies – at least in the capitalist sector. In line with other research (Weidenstedt *et al*. 2020), platform work overall might be considered a driver of precarisation in food delivery services, as it is in other low-paid occupations such as cleaning and transportation, which feeds into trends of polarisation in the labour market (see Chapter 3).

Finally, we may argue that a countermovement, such as that of the Foodora workers and the Transport Workers' Union, might lift the standards in the longer run, and is necessary if the goal is to prevent further polarisation of the labour market. In that regard, the current mobilisation of app-based taxi workers in Sweden is highly interesting (GigWatch 2023). Such countermovement might also be underpinned by legal adjustments such as the proposal of an EU directive on platform work, which is currently being discussed in the European institutions and would make it possible to reclassify platform workers as employees of the platforms based on the fulfilment of certain criteria (European Commission 2021). Another question would concern the regulation of temporary work (Antonsson 2021a) to address the massive use of insecure temporary employment when workers are not self-employed.

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10 Changes in trade union membership and attitudes to unions in Sweden

Jesper Prytz and Bengt Larsson

Introduction

The Swedish system of industrial relations has often been depicted as the epitome of the Nordic model of organised corporatism (Visser *et al*. 2009; Baccaro and Howell 2017). This model is characterised by strong unions and employer associations negotiating collective agreements with a high degree of autonomy from the state, and with wide bargaining coverage. This arrangement has been rather successful at securing good working conditions and wage developments for employees, without undermining the competitive power (Lundh 2004; Anxo 2017).

The Nordic model of trade unionism is based on industrial/occupational unions organised in three class-based confederations – one each for blue-collar (LO) and white-collar workers (TCO), and one for academically trained professionals (SACO). The strength of trade unions has been based on high union membership levels, a historical relationship to social democracy with a strong influence on policy making, and a highly developed and autonomous bargaining system with support structures in the form of the Swedish National Mediation Office and the Labour Court, which helps reduce conflict levels and solves disputes between the social partners (Dølvik 2007; Larsson *et al.* 2012; Gumbrell-McCormick and Hyman 2013).

As technological developments and globalisation affect the job structure on the labour market – either through upgrading or polarisation, as discussed in Chapters 1–3 in this book – we might expect that this also affects industrial relations between employers and trade unions. Changes in the job structure may alter the power balance between various unions and confederations, but it may also affect the overall attitudes towards trade unions and collective bargaining, as well as trade union membership levels (that is, trade union density).

In most European countries, union density has been decreasing over a long period (Schnabel 2013; Kelly 2015). In this context, the decline in Swedish union density started later and has not fallen as much or to the low levels of many other countries. Existing research indicates that the decline in union density in Sweden is related to institutional reforms and value changes (Bengtsson and Berglund 2010; Kjellberg 2011; Palm 2017). However, less is known about

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how this decline is connected to changes in the attitudes to trade unions. Therefore, this chapter analyses attitudes towards trade unions in the context of the decline in trade union density since the mid-1990s. The aim is to understand whether the attitudes towards trade unions have changed, and to what extent this change is related to the institutional rearrangements of the industrial relations systems and the decline in trade union density. In this respect, the chapter deals with the potential consequences of occupational polarisation in terms of changes in trade union density and attitudes among different groups and categories.

The first section of the chapter describes some main institutional changes in the industrial relation system in Sweden that are of importance to understanding changes in union density and attitudes to unions: the decentralisation of wage formation from the 1980s and onwards, and the changes in the employment insurance funds and the regulation of employment forms around 2007. We then present the methods and materials used in the empirical analysis. The first empirical section gives a broad overview of changes in union density in Sweden, as connected to the composition of the labour force and institutional changes in the Ghent system. Thereafter, attitudes to trade unions are analysed, based on surveys conducted in 1997, 2006 and 2018. The analysis begins with a focus on changes in whether workers prefer to negotiate wages individually or collectively through trade unions. Next, we turn our attention to what issues employees think that trade unions should focus on. The chapter ends with some general conclusions regarding the institutional changes and the standing of trade unions in Sweden.

Institutional changes in Swedish industrial relations

The Swedish system of industrial relations formed during the twentieth century up to the 1980s was based on strong trade unions and employer associations negotiating collective agreements with high degrees of collective bargaining coverage – despite being based on autonomous bipartite bargaining without legal extension mechanisms. High levels of union density were secured through an early establishment of a Ghent system of employment insurances administered by the unions. A solidaristic wage policy and a system of centralised wage formation developed in the post-war period (the so-called Rehn-Meidner model), which compressed wages and improved worker conditions without exceeding productivity growth and hampering competitiveness (Åmark 1994; Lundh 2004; Baccaro and Howell 2017. See Chapter 2).

This post-war model of centralised national wage bargaining was abandoned in the 1980s, resulting in a decade of uncoordinated sectoral bargaining. Whereas the direct reason for this decentralisation was the increasing ideological distance between the unions and the social democratic government on one side, and the employer organisations on the other, the contextual background was heightened international competition and increasing problems of wage drift in the private sector and wage inflation in the public sector (Lundh 2004;

cf. Giertz 2011; Granqvist and Regnér 2011). A slight recentralisation was introduced in 1997 with the so-called Industrial Agreement, which gave the export-oriented manufacturing sectors the role to set 'the mark' for wage increases in all sectors. However, the overall tendency of decentralisation of wage determination has continued during recent decades (Thelen 2014; Baccaro and Howell 2017; Ulfsdotter Eriksson *et al*. 2021).

The period from the early 1980s onwards entailed a discursive turn on the issues of wage formation and pay, away from solidaristic values to a focus on organisational productivity, flexibility and individually differentiated wages based on performance and contribution to the organisation (Thörnqvist 1998; Lapidus 2015). The older principles of 'equal pay for equal work', based on nationally coordinated wage tariffs, in which wages were set based on job evaluations, qualifications, tenure and general wage raise, were discarded. The new system that emerged was more focused on individualised performance-related principles rewarding contribution and effort. Thus, the overall period from the mid-1980s and onwards has encompassed an increase in decentralisation and de-collectivisation of wage determination, with collective agreements increasingly prescribing local and individualised wage determination while agreements specifying figures and guarantees nationally decreased. While the changes in this direction were rather modest in the private sector, and particularly for blue-collar workers, change was more profound in the public sector and for white-collar workers (Baccaro and Howell 2017; Kjellberg 2019; cf. Karlson *et al*. 2014). However, the effects on actual wage distribution should not be exaggerated. Even though there are suggestions that these changes have increased wage dispersion, the Swedish wage structure is still quite compressed and there are institutional obstacles to individual wage determination having a strong effect (Anxo 2017; Ulfsdotter Eriksson *et al*. 2021. See Chapter 11).

If the above institutional changes were mainly driven by the social partners themselves – particularly by the employer organisations who refused to take part in centralised bargaining from the mid-1980s – another important change in the industrial relations system was politically initiated. In 2006, the incumbent neoliberal-inspired centre-right government pushed through two changes that affected union density directly (Bengtsson and Berglund 2010; Larsson *et al*. 2012). In 2007, the membership fees to the union-administrated unemployment funds were raised drastically – from 90–105 SEK to 330–365 SEK per month – while simultaneously abolishing the workers' right to tax deductions for union membership (at 25 per cent) and the unemployment funds (at 40 per cent) (Kjellberg 2011, 2019).

In 2008, further changes were made in the unemployment funds, as the fees were based on the level of unemployment within each fund. With a flat 50 SEK fund reduction fee in 2009, some white-collar unions ended up with lower fees than before the 2007 reform, while the fees were increased in many blue-collar unions (Kjellberg 2011; Kjellberg and Lyhne Ibsen 2016). These changes were a way for the government to co-finance the workfare incitement of an income tax credit, with the aim of increasing the rewards for being in employment. It has

been claimed that an additional ambition was to bring about more modest wage demands from the unions in manufacturing industries, which had relatively high fund fees despite low and decreasing unemployment (Kjellberg 2011).

Around the same period, there was a relaxation in the regulation of employment forms. In 2007, general temporary employment (GTE) was introduced as a considerable change to the Employment Protection Act, replacing previous forms of temporary employment and allowing employers an unlimited number of temporary contracts without having to specify the reason. However, temporary employees simultaneously received increased employment security in that employees who were employed by the same employer on a GTE contract for more than two years during a five-year period would gain a permanent employment contract (Berglund *et al*. 2017).

The changes to the Ghent system introduced in 2007–2008 have been shown to have direct effects on trade union density (Kjellberg and Lyhne Ibsen 2016; Prytz and Berglund 2023). In contrast, the potential effects from the other institutional changes on both union density and attitudes to unions would be expected to be indirect and mediated by cultural value change (Bengtsson 2008; Bengtsson and Berglund 2010; Larsson *et al*. 2022; cf. Palm 2017). We will explore some aspects of such changes in the empirical analysis, with the aim of exploring how union density and attitudes towards trade unions have changed in Sweden during recent decades.

Methods and material

The empirical analyses are based on data from several survey data sets. The descriptive analysis of changes in trade union membership levels in Figure 10.1 is based on data from the Swedish Labour Force Survey (LFS) 1997–2015 (for details, see Chapter 3).

The analysis of employee attitudes towards wage negotiation in Table 10.1 is based on an item used in three different surveys from 1997, 2006 and 2018. The item concerned whether the respondents agreed with the following statements: (a) 'The union is needed for employees to be successful in negotiations with their employer', and (b) 'My interests are best looked after if I handle negotiations with my employer myself'. As there was a slight variation in the response alternatives between the surveys, we chose to recode the responses into (1) those who 'strongly agree' or 'agree'; (2) those 'strongly disagree', 'disagree', or did 'neither agree or disagree'; and (3) those who 'do not know' or 'have no opinion'. The reason for doing this was that the neutral option of 'neither agree nor disagree' did not exist in the 2018 survey. Thus, the category of 'agree' in Table 10.1, based on identically phrased response alternatives, is what is in focus of the analysis, whereas the distribution between the two other categories 'neutral/do not agree' and 'do not know' might be less comparable between the surveys.

As the three surveys from 1997, 2006 and 2018 targeted somewhat different populations, only data for employees aged 18–64 years were used. The 1997

survey targeted a random sample of the Swedish population and had a response rate of 52 per cent, amounting to 1267 responses, of which our analysis is based on 974 employees aged 18–64. The 2006 survey targeted a random sample of employees aged 16–64 and had a response rate of 52 per cent, amounting to 1851 responses, all of which were used in our analysis (cf. Bengtsson and Berglund 2010). The 2018 survey targeted a random sample of the Swedish population and had a response rate of 24 per cent amounting to 1653 responses, of which our analysis is based on 1277 employees aged 18–64 (for details, see Chapter 4–5).

The analyses in Table 10.2–10.4 are based on the full data set from the 2018 survey. Whereas Table 10.3 contains descriptive data only, Tables 10.2 and 10.4 report results from OLS regressions on additive indexes (exclude missing pairwise) in standardised Beta-coefficients. The index in Table 10.2 (range 2–10) is based on the two items in Table 10.1, which have a reasonably good scalability (Cronbach's Alpha = 0.68), indicating whether the respondent is preferring collective negotiation over individual. The index in Table 10.4 (range 8–32) has strong scalability (Cronbach's Alpha = 0.85) and is based on the items in Table 10.3, after running a Principal Component Analysis (PCA) on all items. The index indicates the respondent's attitudes towards trade union engagement generally. Arguments concerning these choices are further developed in the text relating to the tables.

Regarding the choice and construction of background variables in Table 10.2 and 10.4, these were developed both with the aim of producing results comparable to Bengtsson and Berglund (2010): age, sex, education, place of residence, family background, disposable income, employment and trade union membership. For interpretive reasons, the general principle of using the largest category as reference in the regression was set aside for some background variables. However, we also ran alternative regression models to check the results using various reference categories (data not shown).

Changes in trade union membership levels

Union density has declined during the last 40 years in most European countries (Checchi and Visser 2005; Schnabel 2013; Kelly 2015). In Sweden, however, union density increased until the mid-1990s, before Sweden started following the general trend of declining union density. From its peak in 1997, when around 85 per cent of all Swedish employees were members of a trade union, union density fell 15 percentage points to 70 per cent in 2021 (Kjellberg 2022a).

Between 1997 and 2005, the decline in union density was rather slow. The decrease from 85 per cent of Swedish employees being trade union members in 1997 down to around 76 per cent in 2005 indicates a mean decrease of around 1 percentage point per year. As shown in previous research, this decline was partly due to structural changes on the labour market, rather than the cultural and institutional changes discussed above – there was a decrease in public

sector employees and an increase in temporary employment. The decline was also partly due to an increase in employment levels (Palm 2017; Kjellberg 2019).

The period between 2006 and 2008 shows a stronger decline in union density, with a decrease from 75 to 69 per cent in two years. This is clearly related to the institutional changes in the unemployment funds, discussed above. The changes increased the costs of being a member of a trade union and its unemployment insurance fund (Kjellberg 2011). This decrease in unionisation was particularly strong among young employees and workers in industries in which the fees increased the most, particularly the hotel and restaurant sector.

In the period from 2008, the decrease again slowed down, from 69 per cent in 2008 to 67 per cent in 2015 – with a slight increase up to 70 per cent in 2020. These changes can be explained by several structural factors: for instance, young, foreign-born, and temporary employed workers, who are less unionised, are over-represented in blue-collar sectors (Kjellberg 2022a; Kjellberg 2022b). Moreover, the composition of the labour force has shown strong shifts. In the public sector, the number of blue-collar employees has decreased more than those with white-collar jobs, and in the private sector employment in union strongholds such as manufacturing has decreased at the expense of employment growth in service jobs (Kjellberg 2022a). In addition, the COVID-19 pandemic led to an increase in union density owing to improvements made to the unemployment insurance (Kjellberg 2022a).

To some extent, the structural changes on the labour market, with the decrease in public sector employees and an increase in temporary employment, may be related to dualisation tendencies rather than to polarisation (see Chapters 1 and 3). When the trends in trade union density are broken down in relation to the class-based confederations (see Figure 10.1), we find that there has been a rather strong decrease in union density in the blue-collar LO confederation over the period, whereas the white-collar TCO and academic SACO confederations have increased their shares of membership.

The reason for these divergent trends may possibly be related to the strong tendency towards upgrading compared to the polarisation shown by Berglund (see Chapter 3). The structural change on the labour market discussed above created a compositional shift so that the relative number of white-collar workers increased (Kjellberg 2022a). In addition, trade unions in the TCO and SACO families, organising white-collar and academically trained professionals, were less affected by the institutional changes in the unemployment funds, as they were not forced to increase the unemployment insurance fees as much as blue-collar unions with higher unemployment levels.

These divergent developments in union density between white-collar and blue-collar workers have shifted the balance of power in negotiations with employers in the Swedish industrial relations system. One of the best illustrations of this was that it was the white-collar union cartel PTK, and not the LO confederation (as was traditional) that, in 2020 negotiated and signed the main collective agreement – it was, however, also signed by the two largest LO unions (Kjellberg 2021).

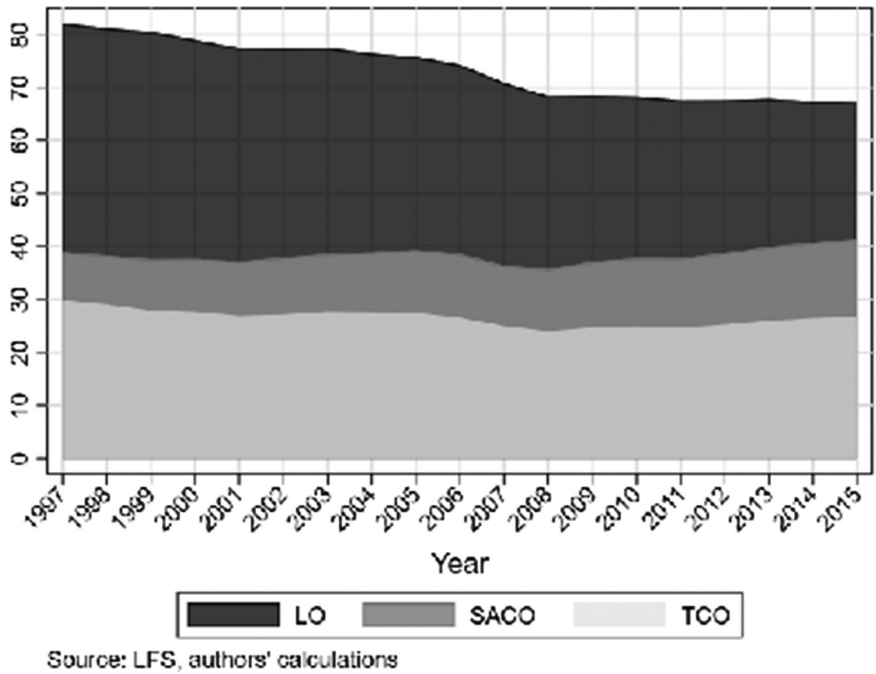

Figure 10.1 Total union density and the membership share of the three main trade union confederations (%).

Attitudes to collective vs individual wage negotiation

While declining union density was a rather direct effect of changes in the unemployment insurance system, potential effects from the institutional shift towards decentralisation and increased individualisation of wage-setting are supposed to be more long-term and indirect. Such effects would be mediated by changes in cultural expectations concerning whether work should be valued as based on local results and individual performance, rather than from a solidaristic and collective point of view (cf. Bengtsson 2008; Bengtsson and Berglund 2010; Palm 2017; Larsson *et al*. 2022). This topic will be analysed by exploring the extent to which Swedish employees prefer collective negotiations through the union or to negotiate individually.

According to research, and studies commissioned by employer associations and trade unions (Sverke *et al*. 2004; Stenberg 2011; Wallenberg 2012; Karlsson Håål and Hedin 2015; Hellgren *et al*. 2017), Swedish employees have a positive attitude towards individualised and performance-related pay. Studies indicate that the legitimacy for individualised performance-related pay is strong among employees in the public sector, that support for individualised pay systems has increased over time, and that academic professionals are more positive than blue-collar workers, and older employees with longer tenure seem to be less

Table 10.1 Employees' attitudes towards collective and individual negotiation (percentage)[a]

	Agree %	*Neutral/do not agree %*	*Do not know %*	*n*
The union is needed for the employees to achieve results in negotiations with the employer				
1997	62.1	35.6	2.3	702
2006	58.1	37.8	4.1	1834
2018	61.4	32.4	6.2	818
My interests are best met if I handle the negotiations with the employer myself				
1997	32.8	61.6	5.6	693
2006	36.2	57.3	9.4	1790
2018	33.9	57.1	9.0	818

[a] These data sets only include employees aged 18–64 (students, unemployed, and employees over 64 years have been filtered out).

positive (Stråberg 2010; Hellgren *et al*. 2017; Larsson *et al*. 2022). However, some have questioned whether this support for performance-related pay is based on biased surveys, and possibly from trade unions accepting and adjusting to a discursive shift pushed through by employer associations, replacing the older principles of 'equal pay for equal work' with a focus on productivity, competencies, and flexibility (cf. Thörnqvist 1998; Lapidus 2015).

Table 10.1 presents the descriptive data from surveys from 1997, 2006 and 2018 with the same question on whether employees prefer collective or individual wage negotiations. From the results, we can see that the slight tendency towards an increase in the willingness to negotiate individually rather than through unions, which was found when only studying the surveys from 1997 and 2006 (Bengtsson and Berglund 2010), was discontinued in the survey from 2018. There is actually very little change in overall attitudes over these 21 years, which does not support the idea of a long-term value change among employees. Around 60 per cent of the employees agree that trade unions are needed for the employees to achieve results in negotiations with the employer, whereas around one-third stated that their interests are best met by direct individual negotiations. The largest change seems to be that the number who do not know has increased over the period, indicating that the share of employees who are uncertain of how their interests are best met in negotiations has increased.

As there are polarised attitudes towards individual versus collective negotiation, which are rather stable over the period, there is reason to investigate in detail what factors affect these attitudes. Whereas these comparisons over time in Table 10.1 only included employees aged 18–64, we now include all respondents from the survey, covering wider groups of the labour force (that is, also students, unemployed, etc.). As the two variables in Table 10.1 are reasonably scalable (Cronbach's Alpha = 0.68), we have created an index indicating the extent to which one prefers collective negotiation over individual negotiation.

Table 10.2 Preferring collective negotiation over individual negotiation 2018 (Index)

	Model 1	*Model 2*
Age	0.10***	0.06*
Sex (ref = Men)		
Women	0.10***	0.11***
Education (Ref = Long Tertiary)		
Short Tertiary	0.00	0.00
Secondary	0.01	−0.01
Primary	0.00	0,02
Place of residence (Ref = City)		
Mixed municipality	0.02	0.01
Rural municipality	−0.05	−0.01
Family background (ref = Self-employed/ Farmers)		
Professionals	0.08*	0.06+
White collar	0.11***	0.10**
Working class	0.13***	0.10**
Sector (ref = Private)		
Public	0.15***	0.12***
Other	0.08**	0.09***
Disposable income	−0.07**	−0.07**
Employment (ref = All other)		
Part-time or Unemployed	0.05+	0.05+
Trade union member (Ref = No)		
SACO		0.15***
TCO		0.12***
LO		0.25***
Other TU/Do not know CO		0.06+
(Constant)	5.41	5.28
R2 (adj)	0.066	0.124
N	1341	1341

Notes: OLS (standardised beta coefficients) Significance levels

+p<0.1
*p<.05
**p<.01
***p<.001

The regression results of Model 1 in Table 10.2 show that collective negotiation is more preferred by older people rather than by younger people, by women compared to men, and by those with a working-class and white-collar family background compared to those whose parents were self-employed. In addition, collective negotiation is also preferred by those working in public or other (that is, non-profit) sectors, compared to those in the private sector, and by those with relatively low disposable income compared to those with higher income.

All these effects hold, on slightly lower levels, when controlling for trade union membership in Model 2 (Table 10.2). This model confirms that collective negotiation is preferred by all trade union members compared to non-union

members. We also found that that members of blue-collar (LO) trade unions are significantly more prone to prefer collective negotiations than those who are members of trade unions in the TCO and SACO confederations.

These results are very much in line with Bengtsson and Berglund's (2010) analyses of the surveys from 1997 and 2006, in which the variables of social class, trade union membership, age and sector affected the preference to negotiate individually versus collectively – although they used somewhat different variable and model constructions. The main difference is that gender did have few and weak significant effects in their analyses of the 1997 and 2006 data, whereas women significantly differed from men in their preference for collective negotiation in the 2018 data.

Even though the age effects might indicate slow generational changes in values, rather than a tendency to become more positive towards collective negotiation with age, as suggested by Bengtsson and Berglund (2010), it is hard to find support for that change. The reason is that the relative stability over time in Table 10.1 indicates that such a change is, in that case, only shown through an increase in uncertainty regarding collective and individual negotiations, rather than in an increase in preference for individual over collective negotiations. As for the other background variables, the results are quite self-evident, in that the employees who might expect lower wages and wage developments prefer collective negotiations more than those in a stronger position.

Attitudes to union engagement in upgrading/polarisation-related issues

Wages are only one of the important issues that members would want their trade union to engage in. The fact that countries with Ghent systems generally have a higher union density than others indicates that unemployment security might be another important reason to become a member – even though it is possible to be a member of the unemployment fund without formally also being a member of the trade union in Sweden (Kjellberg and Lyhne Ibsen 2016). Other issues of importance for becoming or remaining a member of a trade union are their engagement in working time, health and safety, and other working conditions related issues. In the context of structural change in the labour market due to technical development and globalisation, other issues relating to competence development, robotisation and relocation may come to the forefront. In the survey conducted in 2018, we asked about several such issues so that we could depict how different categories of the Swedish labour force view them.

As can be seen from Table 10.3, none of the eight issues surveyed were unimportant at the aggregate level, although we can arrange them in three groups, from the means. The most importance was given to the tasks of trade unions to defend job opportunities, and to work on issues related to vocational training and competence development. To some extent, the latter issues may be connected to the forces behind polarisation, in that it is important for many employees to keep up with technological and organisational development and

Table 10.3 Attitudes towards union engagement in different issues

How important do you think it is that tradeunions engage in the following issues?	*Mean(1–4)*[a]	*SD*	*Do not know*[b]	*n*
Defending jobs in the event of downsizing threats	3.27	0.79	12.8%	1606
Developing vocational training in collaboration with employers	3.24	0.73	13.5%	1604
Demanding increased competence development from employers	3.21	0.77	13.1%	1600
Counteracting relocation of companies abroad	3.04	0.91	16.7%	1602
Distributing income in society	3.01	0.91	14.6%	1606
Opposing a dissolution of the Employment Protection Act (LAS)	2.97	0.97	24.2%	1597
Strengthening the status of your occupation	2.89	0.94	13.4%	1602
Robotisation and automation of jobs	2.61	0.90	18.9%	1600

[a] 1 = not important at all, 2 = Not particularly important, 3 = Somewhat important, 4 = very important

[b] The 'do not know' responses are excluded from the mean and standard deviation measures.

increasing work task complexities as connected to such developments (see Chapter 8). However, it seems paradoxical given such an interpretation that union engagement with robotisation and automation is the least important issue – and one on which many respondents have no opinion. Between these items at the top and bottom in terms of importance are issues related to relocation abroad, income and status distribution, and a debated reformation of the Employment Protection Act (LAS), which caused considerable conflict within the trade union movement during 2018–2020 (Kjellberg 2021). It is unsurprising that many respondents were uncertain about this unfinished reform given its uncertainty and the antagonistic positions among trade unions. However, many did not know how they feel about trade union involvement on other issues. Detailed analyses (data not shown) indicate that young persons, those with low education levels, women, and non-union members were overrepresented among the ones who did not know.

A question that follows from this descriptive analysis concerns what categories in the labour force put emphasis on these various issues. However, by

conducting singular analyses, as well as a dimension (PCA) and scalability analysis, it became apparent that all items in Table 10.3 loaded on one underlying dimension (Cronbach's Alpha = 0.85). This indicates that attitudes on these issues tend to co-vary, and that it is reasonable to create an index. The underlying dimension this index represents seems to be more of a general stance towards the importance of trade union engagement in issues safeguarding from negative effects of globalisation and technological development, and in a wide sense to union engagement in issues relating to income distribution and employment protection.

The results of regression analyses on this index of trade union engagement are presented in Table 10.4. Model 1 shows that trade union engagement is

Table 10.4 Attitudes towards trade union engagement generally (Index)

	Model 1	*Model 2*
Age	0.14***	0.11**
Sex (ref = Male)		
Women	0.17***	0.17***
Education (Ref = long tertiary)		
Short tertiary	0.02	0.00
Secondary	0.10**	0.06
Primary	0.10*	0.10*
Place of residence (Ref = city)		
Mixed municipality	0.03	0.02
Rural municipality	0.03	0.02
Family background (ref = self-employed/farmers)		
Professionals	0.04	0.03
White collar	0.06+	0.05
Working class	0.18***	0.14***
Sector (ref = Private)		
Public	0.16***	0.13***
Other	0.06+	0.07*
Disposable income	−0.10**	−0.10***
Employment (ref = All other)		
Part-time or Unemployed	0.07*	0.06+
Trade union member (Ref = no/do not want to answer)		
SACO		0.05
TCO		0.13***
LO		0.21***
Other TU/do not know		0.03
(Constant)	19.23	19.27
R2 (adj)	0.125	0.160
N	1404	1404

Notes: OLS (standardised Beta Coefficients) *Significance levels.*

+p>.1.
*p<.05.
**p<.01.
***p<.001 (Exclude missing pairwise) Additive index range 8–32

seen as more important by older people (or possible generations) than among younger ones; women compared to men; those with lower education compared to those with higher; those with a working-class family background compared to others; those with lower disposable income compared to those with higher; those in part-time employment or unemployed compared to others; and those working in the public sector. None of these results are surprising given that they correspond to a high degree with the results of what categories prefer collective to individual negotiation on wages in Table 10.2.

These effects also hold when controlling for trade union membership in Model 2 (Table 10.4). This model confirms that trade union engagement in these issues is preferred by employees who are members of a trade union belonging to the blue-collar confederation LO, or to the white-collar confederation TCO as compared to non-unionised employees. Separate regressions (data not shown), indicate that the difference between the LO and TCO members is also significant. However, in contrast to the issue of whether individuals want to negotiate collectively or individually, there is no such effect of membership in unions for academically trained professionals belonging to the SACO confederation as compared to non-unionised ones. An interpretation of this could be that these highly skilled employees find themselves at lesser risk of being hit by downsizing and relocation or by automatisation and falling behind in skills and training (see Chapter 8).

Conclusions

In this chapter we have discussed institutional changes in industrial relations in connection to changes in trade union membership and attitudes to trade unions in Sweden since the mid-1990s. We sought to capture some possible consequences of occupational polarisation and/or upgrading, triggered by technological change and globalisation – as discussed in the introductory chapters. The aim was to understand whether the attitudes towards trade unions have changed, and to what extent this change is related to the institutional rearrangements of the industrial relations systems and the decline in trade union density in Sweden during the period.

Before reaching for conclusions, it is important to emphasise that Swedish trade unions still have a very strong standing, as does social dialogue and collective bargaining with employers, despite the decline in trade union density and the institutional changes in the industrial relations system over recent decades (e.g., Anxo 2017; Kjellberg 2019, 2021). However, even if collective bargaining coverage remains high, there has been a rather radical decrease in trade union density during this period, with a fall of about 20 percentage points – if from a uniquely high level in international and even European comparison (Checchi and Visser 2005; Schnabel 2013; Kelly 2015).

When trying to find explanations to these changes by relating to institutional reforms and changes in attitudes and values, as well as the composition of the labour force, some rather modest conclusions may be drawn.

First, the direct effects of the institutional changes of industrial relations have, with one exception, been rather marginal. The exception is that changes in the unemployment fund system made it more costly for employees in sectors hit by unemployment to be members in the trade union-administered unemployment funds. As shown in previous research, these reforms by the centre-right government during 2006–2008 led to an increase in trade union density decline (Kjellberg 2011; Kjellberg and Lyhne Ibsen 2016). As shown by Prytz and Berglund (2023), this situation is also related to compositional effects, even during the years of these reforms, where the temporary employed, and the young were hit hardest by the institutional changes to the Ghent system.

As regards the overall long-term trend in decreasing union density, we were unable to find strong evidence for it being caused by institutional changes, such as the decentralisation and increased individualisation of wage-setting during the period, or value changes relating to an increased individualism in younger generations – as discussed in previous and recent research (Bengtsson 2008; Bengtsson and Berglund 2010; Palm 2017; Larsson *et al*. 2022). Rather, part of the overall change in trade union density may be explained in terms of structural changes, such as an increase in the share of temporary workers and a general decline in blue-collar jobs. The changes in attitudes regarding whether employees prefer to negotiate on their own rather than having trade unions performing collective negotiations consist mainly in an increase of respondent who 'do not know'. This could, of course, signal a decrease in interest as well as knowledge about trade unions among young people, and thus affect why they are not becoming members, but we cannot find an increase in the share of employees who explicitly believe that it is beneficial for them to conduct their own individual negotiation.

Whether the weak tendency towards polarisation (compared to that towards upgrading) depicted in Chapter 3 in this book has any effects on trade union membership and attitudes to trade unions is hard to say. These could be expected to be found in some rather small pockets of the labour market. However, concerning the overall labour force it seems that the polarised values leading to different attitudes towards trade unions are rather stable and along traditional lines. That applies both to the issue of whether employees prefer collective bargaining or individual wage negotiation, and whether unions should counteract the risks of automatisation, globalisation and relaxations in job security. People in the Swedish labour force who emphasise that trade unions are needed to defend jobs against downsizing, relocation and automation are the 'usual suspects': people in the older generations, women, those with lower education, from a working-class family background, with lower disposable income, and those working in the public sector. These are also the categories that most strongly believe that unions should fight for competence development and training, and that unions should perform collective bargaining and influence the distribution of wages in society. In fact, it seems that the categories of the labour force who may benefit the most from trade unions also

are the ones that support their engagement in employment issues. It is not surprising that employees who are members of trade unions, and particularly unions in the blue-collar confederation LO, also hold such attitudes compared to non-union members. What is problematic in this context is that the decline in union density is strong in the blue-collar LO trade union family compared with the unions in the white-collar confederation TCO and the unions for academically trained professionals in the SACO confederation. The categories of workers that are most in favour of trade union engagement, and who have potentially most to lose from a decline in trade union density, are the ones among whom density declines the most.

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11 Occupational Change and Inequality

Tomas Berglund

Introduction

Sweden has long been regarded as a highly egalitarian country characterised by low income differences, a high standard of living for the general population, and low incidences of poverty. The main causes of these positive features are related to the encompassing and generous welfare state and to an industrial relation system that prioritised solidaristic and equalised wages. At the beginning of the 1980s, income inequality was one of the lowest in the world with a Gini coefficient of 0.17 for the disposable income of the Swedish population (Therborn 2020).

Since then, the picture of an egalitarian society has been questioned – both in the domestic debate and by international observers. For example, the OECD shows a raising Gini coefficient for the disposable income and an increasing top income share (OECD 2017). According to Statistics Sweden, the Gini of disposable incomes for households increased from 0.25 in 1997 to 0.30 in 2013 (SCB 2023). The last year of the series, 2021 (with a slightly different definition of the household unit), shows a Gini of disposable incomes of 0.33.

If inequality is on the rise in Sweden, the question is why. As described in Chapter 2, the Swedish welfare state has changed considerably since the 1990s crisis. The galloping public debt was addressed by such means as tightening public spending and reducing social transfers (Berglund and Esser 2014). Moreover, the commitment to curb inflation forced governments to accept higher levels of unemployment, which deprived many people of decent earnings. In parallel, the stock market has expanded and constitutes an increasing share of the incomes in the top percentiles (OECD 2017).

Besides a less generous welfare state, higher levels of unemployment, and increasing significance of capital incomes, one can ask whether the changes in the occupational structure that have been tracked in this book have any impact on growing inequality. In Chapter 3, the picture drawn was on strongly growing employment in the high-paid strata of the occupational structure, stable employment in the lowest-paid occupations, while mainly the middle-lower quintile decreased in size. However, Robling and Pareliussen (2017) found that a rather small fraction of the increase of the Gini coefficient of disposable

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income is accounted for by industrial changes, which led them to conclude that polarisation tendencies have a small effect on income inequality in Sweden. Similarly, Åberg (2016) showed that the strong tendencies of polarisation he uncovered in the Swedish occupational structure had not led to higher wage differences and that wage inequality even declined.

In this chapter, we will follow Åberg's (2016) approach and study how the transforming occupational structure is related to changes in incomes and inequalities. The focus is mainly on incomes from paid work, called earnings in the text. Some of the analyses make comparisons to the development of disposable income; that is, all incomes from social transfers, capital and earnings, but after deducted tax payments. The chapter starts with some data and methodological issues. Thereafter, the focus is on earnings and disposable incomes, how they developed over time, trying to address whether changes in the occupational structure also drive increases in inequality.

Some issues regarding data and methodology

This chapter is mainly based on data from the Labour Force Survey (LFS). However, LFS does not include information about earnings and incomes. Instead, this information is inputed in the data set from the Swedish LISA register (Longitudinal Integrated Database for Health Insurance and Labour Market Studies). Two variables from the register have been used: yearly earnings from employment and disposable income. Earnings (Förvärvsinkomst) includes both wages (that is, payments to employees that requires employer contributions to the state) and earnings from self-owned business. Those incomes are declared to the taxation authorities and included in the register as earnings before taxes are deducted. However, the earnings do not include profit from capital assets or incomes from social transfers. Individual disposable income includes all kind of incomes, including earnings, capital incomes, and incomes from social transfers, such as child allowances or housing benefits. All incomes are considered after taxes have been deduced. Moreover, as several social benefits are calculated at the household level, the sizes of the incomes are recalculated and refer to individual incomes in the register.

However, LFS and the LISA register are not fully compatible as incomes refer to yearly incomes in the register, while LFS consists of panels included in LFS during eight subsequent quarters over more or less a two-year period. Those years do not necessarily refer to calendar years as one-eighth of the respondents are replaced in LFS each quarter of the year. Thus, if respondents start in LFS (Rotation Group 1) in the last quarter of a calendar year, they participate a full second year and then three quarters of the third calendar year. This means that, for each year, approximately five-eighths (about 62 per cent) of the panel corresponds with a full-year cycle, and one-eighth (12 per cent) have only one observation during the year. This may affect yearly estimations of the relationship between employment in an occupation and yearly incomes. Moreover, the interviews that LFS is based on generally refer to a specific measurement week in a specific month during the quarter, which means

that we do not have any information about what is going on during the other weeks and month in the quarter. In addition, between interviews, respondents can change their occupation or labour market status (for example, become unemployed). In a previous study the yearly mobility between occupations was estimated to be about 10 per cent (Berglund *et al.* 2010). The current study contains between 140,000 and 190,000 yearly observations (about 3,200,000 observations in total), based on about 25,000 individuals a year (400,000 individuals in total).

Overall, the data used here are currently the best available in terms of combining rich information about the labour market position for the whole year. In the Swedish registers (e.g., LISA or Wage Structure Register), no information is currently available regarding monthly events on the labour market, such as an individual's specific occupation. Instead, only a single measurement point (often a reference week in November or September each year) is used in the register to estimate the labour market status.

The analyses below mainly used weighted data. The weights in LFS compensate for under-represented categories by adjusting the sample in relation to population parameters (known from Swedish registers) and recalculate the sample to total numbers of the population (SCB 2011). Moreover, the weights also adjust for the dependence between observations (that is, the panel structure).

Inequality in a Changing Occupational Structure

Much of the analysis in this book has built on the classification of occupations based on full-time wages. This mainly mirrors how the industrial relations and wage-setting works in Sweden, especially to the Industrial Agreement (IA), introduced in 1997, which set the mark for negotiated wage increases in the labour market (see Chapters 2 and 10). However, some observers claim that the Swedish industrial relation system has moved far in a neoliberal direction with both local and individualised agreements on wages, and removed any reminiscent of solidaristic wage policies (Baccaro and Howell 2017). If this observation was correct, we would expect increasing wage inequalities in Sweden. Others do not agree with this analysis and still find solidaristic elements in the Nordic wage-setting regime (Marginson and Dølvik 2020).

However, incomes are about not only the negotiated wage, but also the actual earnings that workers can retrieve from the labour market. This is affected by the number of working hours people use for paid work, which is mainly related to the functioning of the labour market; for example, of the risks for only part-time work or temporary positions, and the risks of unemployment (see Ilsøe 2016; Alfonsson *et al.*, 2023). Moreover, the final disposable income adds further elements, such as capital incomes and social transfers, and net of taxes, resulting in the real income for consumption. As discussed in Chapter 2, the Swedish labour market has moved in a dualised direction, especially by deregulating the use of temporary employment. This has resulted in more job insecurity for parts of the labour force, which could affect income security

(Svalund and Berglund 2018). Furthermore, several welfare institutions (such as sick leave and unemployment insurance) have decreased in generosity during the time period in focus (Berglund and Esser 2014), when in parallel the value of the stock market and financial profits have increased steadily (Erixon and Pontusson 2022: 285). Thus, besides the general trend of occupational change shown in Chapter 3, several other factors point in the direction of increasing inequality, in terms of both actual earnings and in disposable incomes.

Figure 11.1 shows the Gini coefficient for earnings from employment and disposable income. The upper graph shows the Gini coefficients per year for individuals with some earnings from employment (>0) and before taxes. It indicates high inequality among individuals when disregarding the number of working hours per year. The main reason for the high Gini is the large numbers of very low incomes. For example, in 2014 the lowest 10 per cent of the distribution had earnings below 38,000 SEK a year, where the median was 286,000 SEK. However, the most conspicuous point of the graph is the stability over time, with the index remaining on the same level the whole period. The lower graph shows the Gini index for full-time workers (that is, a normal working time of 36–44 hours a week). The level of inequality becomes much lower compared

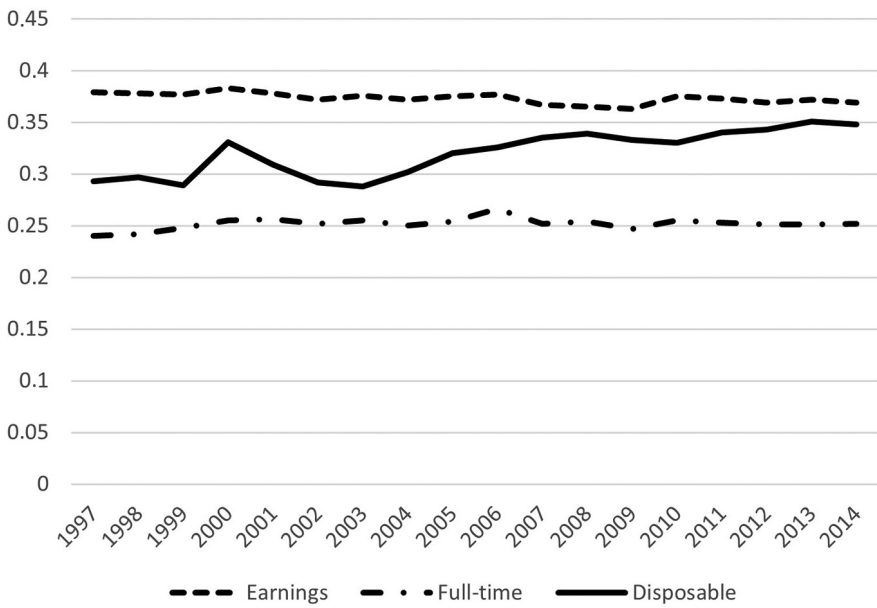

Figure 11.1 Gini coefficient for yearly earnings from employment, a subsample of only full-time employed (36–44 hours a week), and disposable income for all people aged 16–64. Restricted to individuals with incomes above 0 and to rotation group 1 in LFS. Income data from LISA register. The numbers of observations for the three groups are 318,161, 176,126 and 364,203, respectively.

to when all people with some employment during the year are included. This difference clearly indicates that working time and employment stability over the year are central factors for inequality. However, the analysis does not give any evidence for any effect of a changing occupational structure for inequality.

The middle graph shows disposable income and indicates increasing inequality during the period. Apart from the peak during the so-called IT bubble in 1999–2001, the largest increase set in between 2005 and 2008. This period saw an upturn in the business cycle, particularly in 2006 and also institutional changes, where the "job-tax-deduction reform" was conspicuous (see Chapters 2 and 10). Since then, the Gini index continued upward, albeit with a slight drop during the financial crises of 2008–2010. Adding the information of the non-trend of the Gini for earnings before taxes gives a strong indication that the increase of inequality of disposable incomes are weakly related to the development of earnings from employment during the period.

Figure 11.2 (a) and (b) show the median earnings and disposable income for individuals employed within five occupational quintiles (Q1 to Q5).

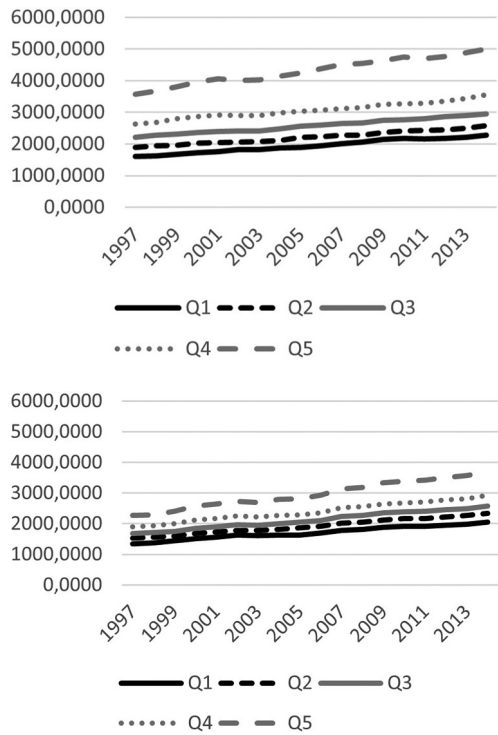

Figure 11.2 Median yearly earnings from (a) employment and (b) disposable income within occupational quintiles. In hundreds of SEK. Deflated to 2015 prices. Individuals 16–64 years with incomes above 0. Weighted LFS data. Incomes from LISA register.

Those quintiles are defined in a similar way as in Chapter 3, and refers to fifths of all employed, starting with the fifth working in occupations with the lowest full-time wage up to the fifth working in occupations with the highest full-time wage. The ranking is based on the figures for year 2000, and the identified occupations in each of the quintiles are held constant, making it possible to calculate changes over time. Important to notice, however, is that the full-time criteria of occupational wages only refer to the occupational level and not to the individuals working in those occupations. Thus, the earnings shown in the figures also include less than full-time work.

Figure 11.2 shows that all occupational categories have had income increases during the period –in terms of both earnings and disposable incomes. The highest percentage increases of deflated earnings from employment are found for both Q1 and Q5 (41.5 per cent and 40.1 per cent, respectively), while the increases are lower in the three middle quintiles (36.8 per cent, 34.1 per cent, and 35.4 per cent counted from Q2). However, counting absolute incomes the increase in yearly earnings is much higher in Q5 (approximately 140,000 SEK) than in Q1 (67,000 SEK).

Concerning disposable incomes, the increases are rather similar in Q1 up to Q4, lowest in Q2 (52.4 per cent) and highest in Q4 (54.9 per cent). However, the increase in Q5 is much larger (63.2 per cent), which refers to a larger disposable income of 143,000 SEK comparing the first and last years. The increase in Q1 was only 71,000 SEK.

Figure 11.3 shows the distributions of individuals over the 1st to the 99th earnings percentile presented for each occupational quintile and for the years 1997 and 2014 separately. Comparing the distribution within the quintiles, the overall picture looks as expected. The earnings in Q1 are mainly found in the lower part of the distribution, with the median placed in percentile 38 in 1997 and percentile 35 in 2014. Over time, the distributions for the two years are almost identical, albeit with a small tendency to shift downward. In Q2, the shift downward is clearer, and the median moved from percentile 50 in 1997 to percentile 44 in 2014. Downward shifts are also present in the distributions of Q3 and Q4, while they are particularly strong in Q3, where the median has moved from percentile 61 in 1997 to percentile 54 in 2014. In Q5, the earnings are generally on a much higher level than in the other quintiles. However, the median has, as in the other quintiles, moved downward from percentile 86 to percentile 83. Figure 11.3 also includes the distribution for un-classified individuals; that is, individuals who have earnings over 0 but are not classified with an occupation in LFS. In 1997, this group represented 16.3 per cent of all individuals with earnings above 0 and 13.5 per cent in 2014. These individuals are mainly found in the lowest percentiles of the earnings distribution, with a median around the 10th percentile.

Table 11.1 shows median earnings, share of total earnings, and quintile size. Moreover, two different earnings ratios are calculated for the different measures. The first of these is the ratio of median earnings between Q5 and the other quintiles. In 1997 the median earnings were approximately two times

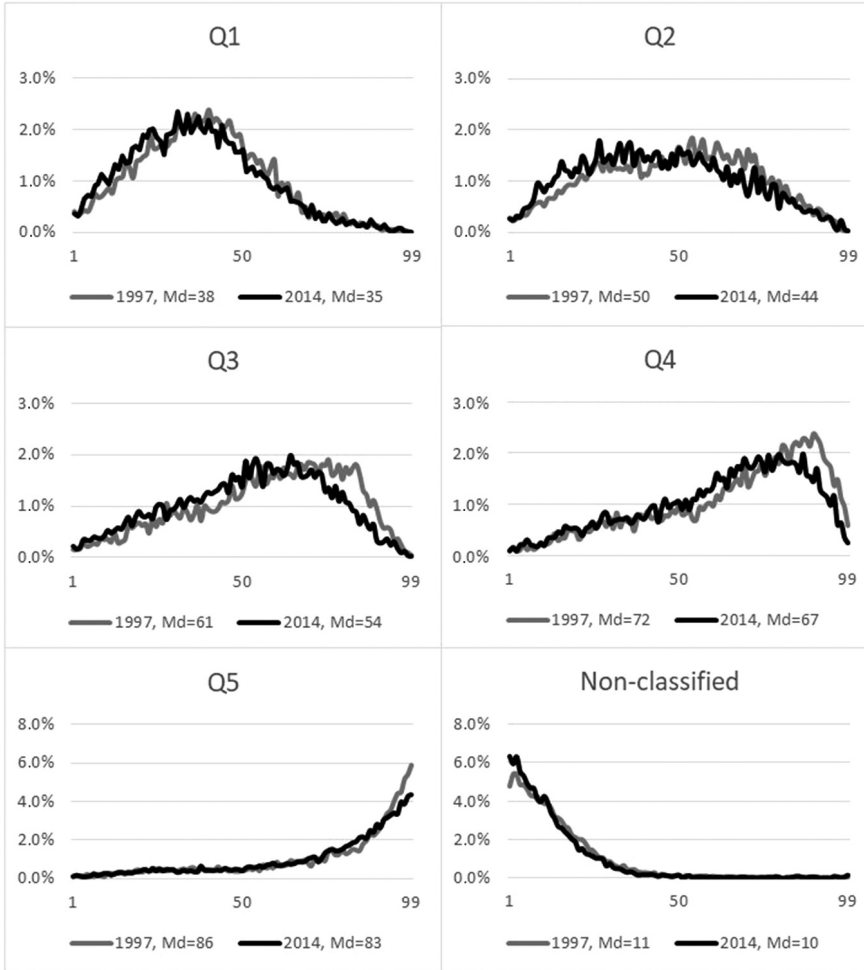

Figure 11.3 Distribution over earning percentiles within quintiles and non-classified for 1997 and 2014. Per cent and median. Individuals 16–64 years with incomes above 0. Weighted LFS data. Incomes from LISA register.

higher in Q5 than in Q1. This ratio decreased slightly in 2014 (from 2.01 to 1.97). For the other three quintiles, however, the ratio did increase over time, indicating larger differences of median earnings in comparison to Q5. The increasing difference is largest when comparing Q5 with Q2 (from 1.58 to 1.66).

The second comparison shows how much of total earnings (that is, the sum of all individual yearly earnings) are implied by 1 per cent employment in each quintile (that is, the quintile's share of total earnings divided by the quintile's share of total employment). In 1997, individuals in Q1 earned 14.2 per cent of total earnings of all individuals in employment, while individuals in Q5 earned

Table 11.1 Median earnings, quintile share of total earnings, and quintile size

	1997	*2014*		*1997*	*2014*
Quintile 1			**Ratios Median Earnings**		
- Median Earnings (SEK)	160,700	227,400	Q5/Q1	2.01	1.98
- Share of Total Earnings (%)	14.2	12.5	Q5/Q2	1.58	1.66
- Quintile Size (%)	21.8	19.7	Q5/Q3	1.39	1.44
Quintile 2			Q5/Q4	1.23	1.26
- Median Earnings (SEK)	204,000	270,700			
- Share of Total Earnings (%)	16.5	11.9	**Share Earnings per per cent employed**		
- Quintile Size (%)	20.2	15.6	Q1	0.65	0.63
Quintile 3			Q2	0.82	0.76
- Median Earnings (SEK)	231,700	312,400	Q3	0.95	0.88
- Share of Total Earnings (%)	18.2	15.6	Q4	1.13	1,05
- Quintile Size (%)	19.1	17.8	Q5	1.54	1.48
Quintile 4					
- Median Earnings (SEK)	263,300	358,400			
- Share of Total Earnings (%)	23.6	23.3			
- Quintile Size (%)	20.9	22.1			
Quintile 5					
- Median Earnings (SEK)	323,000	449,800			
- Share of Total Earnings (%)	27.5	36.6			
- Quintile Size (%)	17.9	24.7			

27.5 per cent. Relating this to the relative sizes of the quintiles, 1 per cent employment in Q1 accounted for 0.65 per cent of the total, and the equivalent proportion in Q5 is 1.54 per cent. Over time, the relative share per per cent employed decreased for all quintiles, but particularly in Q3 and Q4. The decrease was lowest in Q1 – from 0.65 to 0.63 per cent.

It is possible to conclude from these ratios that the earnings differences between the bottom and the top quintile are rather stable or even have decreased slightly over time. For the three middle quintiles, the distance to the top quintile increased, while the differences to the lowest quintile were reduced. However, the question remains why this catching up by the employed in the first quintile takes place, and the persisting earnings differences to Q5 remain or even increase (in relation to the middle quintiles).

Figure 11.4 shows the percentage change in total hours worked and change in mean hours worked – both in relation to 1997 – within quintiles included in the analysis. Comparing the quintiles, a rather strong increase of total hours takes place in Q1, apart from the growth of hours in Q4 and Q5. In Q1, the hours increased by close to 20 per cent between 1997 and 2014, with a particularly strong increase after the financial crisis of 2009. In the other direction, and also mainly after the financial crisis, did change go in Q2, where the decline in total hours was approximately 4 per cent. Thus, the overall pattern in Figure 11.4 of

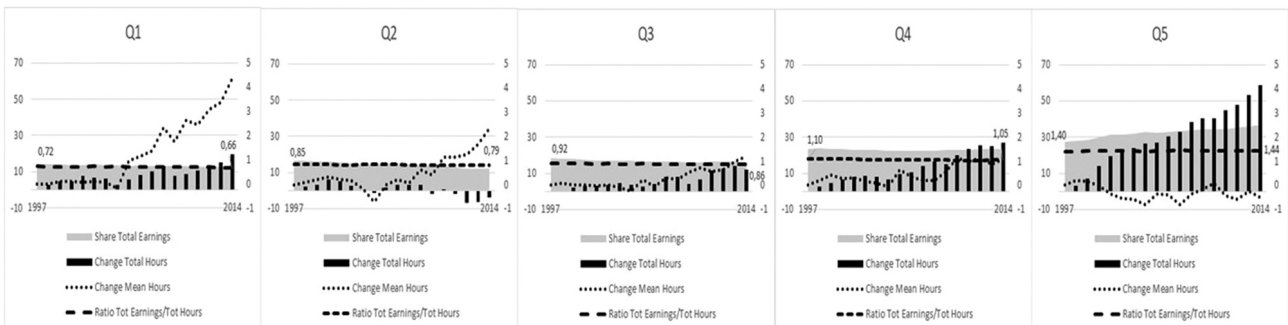

Figure 11.4 Share total earnings of quintiles per year, change of total worked hours in per cent and compared to 1997 within quintiles, change of average working hours compared to 1997 within quintiles, and ratio of share of total earnings and share of total hours of quintiles per year. Weighted LFS data and LISA data.

total hours worked is much more in the direction of polarisation than when change is studied in the numbers employed in the quintiles (see Chapter 3).

The explanation of this discrepancy is found in the mean hours worked in the quintiles (Figure 11.4). In all quintiles apart from Q5, the average hours worked increased. Moreover, the increase in Q1 is especially strong; until 2004 it remained on more or less the same level as 1997 (about 33 hours a week), but in 2005 it increased by one hour and continued to increase the following years, reaching 37.7 hours a week in 2014. The increases are not as strong in the other quintiles, while in Q5 it has remained at approximately 40 hours a week. Thus, the growing numbers of total hours in Q1 is explained by the raising of mean hours that are worked in the quintile, while the number of people employed in the quintile remained more or less constant. By contrast, in Q5 the increasing total hours are explained by the growth of employment rather than increased mean working time.

Figure 11.4 also shows the share of total earnings for each of the quintiles per year. The endpoints of the shadowed areas are similar to the shares displayed in Table 11.1. Figures indicate rather stable or slightly decreased levels, except in Q5 where there is a strong increase in the share of total earnings. This is, of course, mainly an effect of the increase of total hours worked in the quintile. However, a similar increase is not found in Q4, even though the total number of hours worked has increased by about 27 per cent. In fact, the ratio between total share of earnings and total share of hours has moved downward from 1.10 to 1.05 in Q4. A similar decrease is also found for all the quintiles below Q4. Only the category of employed in Q5 increased its ratio from 1.40 percentage point of total earnings per 1 percentage point of total hours – a ratio of 1.44. Thus, the extraction of earnings among people employed in Q5 has increased over time, while it has decreased in the other quintiles. This phenomenon is independent on the hours worked in the quintile but most probably on higher general wages and a redistribution of employment to the high-paid occupations within the quintile.

Conclusion

This chapter has sought to shed light on the relationship between a changing occupational structure and inequality in earnings and disposable income. Previous studies provide good reasons to expect increasing inequality during the period from 1997 to 2015. The labour market and the occupational structure have changed in the direction of increasing numbers in well-paid jobs, and the numbers in the low-paid end remains at the same level. The numbers in middle-level jobs are either declining or have slower growth than those in the upper quintiles. At least, this is the picture shown in a previous chapter of the present book (see Chapter 3), while other studies have found stronger tendencies of polarisation (Åberg 2016). In the present chapter, analysing the change of total working hours conducted in the different quintiles, a clear pattern of polarisation becomes visible.

A polarised labour market may change earnings in the direction of increasing inequality if middle-level employment is hollowed out and strong demand in the higher end also implied increasing wage differences (such as hourly or full-time wages). Some studies claim that the Swedish wage-setting system (the Industrial Agreement) moves wages in the direction of higher inequality as localised and individualised wages are more widely used in the labour market. Other studies have disagreed, asserting that solidaristic features are still a function on the Swedish labour market.

Other factors that can affect income inequality are not directly related to the labour market, but are instead related to the evolution of capital incomes, social transfers and tax rates. During the period in focus the value of the stock market increased strongly, while social transfers generally became less generous. The latter is also related to the labour market and how easy it is to obtain and remain in gainful employment. During the period, unemployment levels became stuck at a comparatively high level and employment became increasingly insecure due to the widespread use of temporary contracts. Therefore, raising inequality in disposable income is a reasonable expectation.

Consequently, the main result of the current study is increasing inequality when disposable income is studied. In the LFS data set, the Gini coefficient increased from 0.29 in 1997 to 0.35 in 2014. This increase is in line with the results of other studies and shows that real total incomes have become more unequally distributed over time. However, regarding earnings – that is, income from paid work before tax – inequality has not increased in a similar way. The analyses include everyone with earnings above 0, which means it includes several people with very low earnings; consequently, the Gini is on a higher level – in 1997 it was 0.38, moving down to 0.37 in 2014. When selecting the sample to individuals mainly working full-time over a year, the Gini moves down to around 0.25, with very small changes during the period.

Focusing the analysis on the occupational wage quintiles shows that both the highest and the lowest quintiles have had the highest increases in real earnings from 1997 to 2014 – 40.1 per cent and 41.5 per cent, respectively. Furthermore, the ratio of the median earnings for Q5 and Q1 decreased slightly, and the share of total earnings per percentage point of total employment in the quintile decreased less for Q1 compared to the other quintiles. All these results point in the direction of a slightly decreased difference in the earnings of employed in the lowest- and highest-paid quintiles. At the same time, however, the differences in earnings between Q5 and the three middle quintiles seem to have become larger and, in parallel, Q1 caught up with the middle quintiles' earnings.

The main explanations of these patterns are that working time – both the total and the mean –increased more in Q1 than in the other quintiles, but became stagnant or decreased slightly in Q5. The increase in total and mean working time in Q1 started in 2005 and continued during the rest of the time period. While not analysing what exactly explains these increases, it is possible

to presume that both business cycle effects and institutional changes are the explanation, albeit with an emphasis on the latter. The centre-right government that took office in 2006 made tax reforms that cut taxes for those in employment compared to the non-employed, subsidised low-paid service jobs, and decreased the generosity in several benefit systems, particularly regarding unemployment insurance (see Chapters 2 and 10). All of these changes may have increased hours worked in the low-paid job market, without increasing the employment rate. Similar increases in mean working time are also found in the three quintiles above, but with later starting points (around 2007) and not as strong as in Q1.

However, calculating a ratio between the share of total earnings of the quintile and the quintiles' share of the total working hours, the analysis indicates that Q5 has increased its ratio over time, while the other quintiles have decreased ratios. This means that the value of every worked hour has increased for Q5 and decreased for the rest. We have not analysed why this tendency was found, but possible explanations are either higher wage increases in Q5 compared to the other quintiles, or that employment within Q5 especially increase in better-paid positions (or/and the other way around in the other quintiles). Some indications of the latter are found in Chapter 3, showing that very strong increases in employment have taken place in managerial positions within Q5.

In summary, the general conclusion of this chapter is that inequality have been on the rise in Sweden when we focus on disposable income. However, the changes in the labour market that has been detected, with a strong increase in the highest-paid occupations, stagnant employment in the lowest-paid occupations, and some decreases in the lower-middle occupations, has not directly added to overall inequality. This conclusion is similar to that of Åberg (2016), who also found that polarisation tendencies in the Swedish labour market did not affect increasing inequalities of incomes. One possible explanation of this result is that the Swedish industrial relation system still has a built-in mechanism of solidarity. One such mechanism is very strong normative expectations among employees of at least similar wage increases as the decided mark in the Industrial Agreement (Ulfsdotter Eriksson *et al*. 2021). Thus, the explanations for raising income inequalities in Sweden must be searched for elsewhere, where political priorities concerning the welfare state and macro-economic policies boosting financial assets are the main suspects.

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12 Scrutinising polarisation

A closing

Tomas Berglund and Ylva Ulfsdotter Eriksson

Introduction

This book set out to scrutinise polarisation by identifying and exploring patterns and variations of labour market transformation and its consequences. The research presented draws on several studies conducted within the research programme called *The Challenges of Polarization on the Swedish Labour Market*, funded by the Swedish research council Forte. The backdrop to the research programme, as well as this book, are changes in the labour markets in Western economies that have taken place in the last decades (Chapters 1 and 3). These changes relate mainly to the occupational structure, which is described as polarising, with employment growing in both high- and low-quality jobs, while middle-layer jobs are hollowed out. This pattern was first shown in the US in the 1990s and the main cause for these changes was believed to be advancement in digital technologies. However, this perspective on change has been contested by research – mainly in the European context – that asserts that the job structure moves in the direction of monotonic upgrading, with employment growth being positively related to educational requirements. In this final chapter, we return to the overall questions addressed in Chapter 1 to provide some reflections and answers.

Upgrading or polarising?

The core question in this book concerns the occupational structure in Sweden: Is it moving towards upgrading or is it polarising? What became clear through the research reported in this book is that the answer to this question depends largely on which occupational features the change is measured against: Is it measured against occupations' median wages or their skill requirements? Or is it the symbolic evaluation (that is, the occupational status) that is tied to an occupation? Throughout the various chapters, we have included all those qualities and some more, and by approaching the last decades' transformations from different perspectives, the research has shown that there is not a straightforward answer to the posted core question. Instead, the picture of change becomes nuanced and complex, even though

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the different studies presented in this book make it possible to reach some general conclusions.

One clear conclusion is that employment in occupations with high wages, skill requirements and status has increased sharply since the 1990s. This finding points unequivocally in the direction of upgrading; that is, the Swedish labour market produces employment opportunities of high quality. However, the changes that are taking place at the lower end of the occupational distribution are less easy to make decisive conclusions about. Employment in occupations that have the lowest wages and with low status do not decrease, or do so only marginally, both in absolute and relative measures, while employment in occupations with the lowest educational requirements has even increased. Still, in occupations slightly above the ones with the lowest pay, status or skill requirements, employment is clearly decreasing. This middle-lower-level category of occupations includes both clerical positions and occupations within manufacturing. These occupational categories are expected to decline, according to one of the main theoretical strands in the discussion, routine-biased technological change (RBTC. cf. Autor *et al*. 2003).

The debate about how the occupational structure in Sweden is changing has featured strong voices for polarisation (Åberg 2015; Adermon and Gustavsson 2015) and for continuing upgrading (Oesch and Piccitto 2019; Tåhlin 2019). In this, and drawing on the main findings presented in this book, we have to take a typically Swedish middle position. While we acknowledge the strong upgrading tendencies in the Swedish labour market, the processes taking place in the lower tail of the occupational distribution are not unambiguous as employment does not shrink as expected if changes had moved unequivocally in the direction of upgrading. Moreover, we have to recognise issues with the data used in our study as well as in many other studies, which is mainly register data, the Labour Force Survey (LFS) and other survey data that have to do with non-responses. In particular, the LFS has problems reaching the more marginal groups of the working population – handled by weighting the data – and does not include European-posted workers, workers hired from third countries, as well as workers in the grey economy. Although we do not know how this totality of the Swedish working force would affect the outcome, there are good reasons to expect those categories to add to changes in the direction of polarisation.

Causes and explanations

A starting point for the studies presented in this book is the literature on how technology, and especially digitalisation, has been the main cause of changes in the occupational structure in the Western world. In addition to technology, the theory of skill-biased technological change (SBTC) also emphasises educational expansion as an important factor in itself for increases in high-skilled employment. As discussed and forecasted by Bell (1973), the post-industrial society faced new complexities in governing, an increasingly affluent

population and a globalised world, and forced societies to expand occupational tasks and roles, often demanding a more skilled workforce. Furthermore, knowledge production in itself, following Acemoglu's (2002) argument, reinforces invention, with new products, services and production methods. We also want to add that an increasing stock of knowledge and human capital tends to increase awareness of negative side effects of technological expansions, such as ecological or human (e.g., the health effects of working conditions), which often require new occupational roles that aim to reduce those side effects. Thus, the effects of these processes on the occupational structure can be regarded as a consequence of the expansion of human knowledge overall.

Moving back to the more specific effects of digital technology, the analyses presented in this book provide support for the mechanism of change proposed by RBTC (cf. Autor *et al*. 2003). Employment in occupational groups in the middle-level strata, such as assemblers and clerks, is clearly diminishing, implying reductions in occupations with routine work tasks that can be overtaken by automated processes (Chapter 3). On the other hand, digital technology does not yet replace employment in occupations mainly consisting of non-routine and social interactive work tasks, even when those require relatively low skills. As also shown by Hedenus and Nordlander (Chapter 8), there are still work tasks within manufacturing that have substantial handicraft features that management does not find affordable to try to replace, and that work in manufacturing has changed characteristics from more of a traditional blue-collar task to more white-collar tasks of controlling the digital work process.

The RBTC theory also predicts that the productivity of jobs higher up in the occupational structure is enhanced by digital devices. We have not studied whether this is the case, but have instead relied on indirect evidence of increasing demand for occupations such as technicians, engineers and ITC experts. As Berglund showed in Chapter 3, we find a vast increase in these kinds of occupations (cf. Ulfsdotter Eriksson *et al*. 2022), and, in line with other research, work tasks higher up in the occupational hierarchy are characterised by more problem-solving and decision-making.

However, what the interaction with digital technology looks like, and if this interaction implies higher productivity, has not been studied in this volume. In one sense, it seems contradictory that the productivity gains envisioned lead to higher demand for these categories of employees, as more efficient production methods – at least further down the occupational hierarchy – have usually meant a reduction of the number employed conducting those tasks (Chapter 3). Some researchers have suggested that digitalisation rather than simplifying work tasks and production processes leads to higher complexity, extended work of monitoring and maintaining digital systems, and new demands on expertise and accountability in computer-aided decision-making (Glouftsios 2021; Bergquist and Rolandsson 2022). Relating to the previous discussion of an overall more complex development of societal interactions, the demand for occupational groups handling these complexities may increase strongly.

One surprising feature of our findings is the strong employment growth in occupational categories not directly related to technological change, such as managerial, administrative and legal professional groups (Chapter 3). These occupations are seen as necessary to manage and control complex organisational settings. The increase in these categories has more to do with changes in the institutional framework than with the productivity-augmenting effects of digital technology.

As argued in the introductory chapter, in the Swedish context, political priorities and decisions are key to understanding the evolution of the occupational structure. Several of the chapters have discussed the large public sector in Sweden, and changes in this sector have had a huge impact on employment and the occupational structure (Chapters 2, 3, 7). Following overall trends and discourses in the Western world (e.g., Hood 1991), and aligning with the economic crises in the Swedish welfare system in the 1990s, the public sector tapped into the new governing regime of New Public Management (NPM). NPM implies strict budget control and the creation of internal markets to increase efficiency. Through various deregulations, large parts of the public sector were also outsourced to private providers (cf. Larsson *et al*. 2012). These major institutional changes have impacted the occupational structure in three ways. Firstly, there are strong indications that much low-paid employment has moved from the public to the private sector, mainly involving occupational groups within personal care and related workers. The consequences of these changes are tendencies of polarisation within the private sector and strong upgrading in public employment. Secondly, employment in managerial, administrative, business and legal professions has expanded strongly in the public sector to manage the new complexities, as discussed above. Thirdly, even though the NMP strategies are aimed at efficiency, and often implemented in tandem with the ideals of a lean organisation, researchers have discussed how NPM, with increased requirements for documentation and auditing, leads to increased administration for professional groups and fewer hours worked in the core business.

The decades under study in this volume have been characterised by further institutional changes, which have most probably added to the development of the occupational structure in Sweden. To reduce unemployment, several policy changes to increase employment at the lower end have taken place, such as subsidised employment and tax reforms to increase the demand for domestic services. While we have not been able to directly test the effects, Chapter 11 revealed a strong increase in working hours in the lower end that coincides in time with the implementation of several of these reforms. Thus, if calculating working hours rather than heads, the Swedish labour market has moved strongly in the direction of polarisation. However, the rationale behind the reforms is understandable in the context of high unemployment rates during the period, combined with strong immigration, and an industrial relations system that made adjustments of wages downward very hard to achieve; we return to this question below.

In addition to different subsidies for low-paid employment, employment protection legislation has been reformed with vast liberalisations in the regulations of fixed-term contracts. As shown by Hedenus and Nordlander and Banasiak and Jesnes (Chapters 8–9), this is something that employers take advantage of to increase flexibility. Digitalisation seems to impact the overall rationale to use temporary employment in flexible production processes but also facilitates the use of temporary workers, such as in app-governed platform work. This development creates a core and periphery of workers in the labour market, where the latter has poor working conditions. Among other things, the employers' incentives to invest in training for the temporary and periphery workers are reduced, which may hamper transitions from insecure and often low-paid employment. As also shown by Berglund (Chapter 3; cf. Berglund *et al*. 2022), temporary employment is most prevalent in the lowest-paid occupations, and increasingly so over time. Thus, the opportunities to employ with fixed-term contracts may be a factor that maintains the employment rate in the low-paid sector as temporary employment is usually believed to decrease the hiring and firing costs of employers, especially in highly regulated labour markets (Skedinger 2011).

Consequences for labourers

The changes in the occupational structure that have been tracked in this volume affect social categories differently. The least attractive jobs are, of course, found at the lower end of the occupational structure, whether we classify this structure based on wages, status or skill requirements. The groups that are most exposed to less favourable working conditions, for example, regarding wages, work environments and job insecurity are women, young people, immigrants and the low-educated. As shown by Ulfsdotter Eriksson and Nordlander (Chapter 4), women dominate in low-status and low-paid occupations, while immigrants have had the strongest increase in those jobs (Chapter 3). However, concerning both gender and descent, the development since the 1990s has had rather favourable traits. Our research shows that the share and number of women in low-status and low-paid occupations has decreased (Chapter 4; cf. Ulfsdotter Eriksson *et al*. 2022). Women still comprise the majority of the less-recognised occupations, but the shares and numbers have declined, while women have made significant intrusions into high-status occupations. This is another important consequence of the changes that have taken place in the public sector, demanding more labour in advanced positions to govern public sector operations.

Concerning immigrants, the picture is more worrisome as the share in the low-paid occupational groups has increased strongly. This is an effect of the large reception of immigrants during the period in Sweden, especially due to the refugee crisis in 2015. First-generation immigrants are disadvantageous for several reasons, such as language proficiency, skill deficits and the lack of country-specific human capital (cf. Tibajev 2022). Moreover, immigrants'

placement at the low end of the occupational structure also often implies the position of outsiders to the organisation, caught in temporary employment and exposed to algorithmic management in platform work (Chapter 9). However, Elgenius and colleagues showed (Chapter 6) that many people with a non-European background in the second generation are catching up with the majority population, often by investing heavily in education. However, this conclusion is drawn from following up on previous immigrant groups in Sweden.

Despite changes in the institutional framework, Dellve with colleagues (Chapter 7) showed that, from an overall perspective, work environments are quite stable, albeit with some divergent trends over time. For example, quantitative job demands seem to develop positively, while emotional demands move downwards. The latter is obviously an effect of the increasing social interactive dimension of work, while the former could be a consequence of the automatisation of production following the trend of digitalisation. However, the analysis of work environments also shows that there are large divergences between occupations. In particular, male-dominated occupations seem to develop more positively over time, while female-dominated occupations – often characteristic of the public sector – move in the other direction. Again, this seems to indicate that digitalisation, at least for the present, implies more positive effects for the work environments of men than for women, as digital devices impact more on routine tasks than on social interactions.

Sweden is often described as a country with vastly increasing inequalities with growing economic gaps between the haves and the have-nots (Chapter 11). While several of the studies presented in this book have revealed worrisome tendencies of segmentation and dualisation of the labour market, with increased job insecurity in the lowest parts of the occupational structure, as well as increasing inequality in the disposable income of workers, we must also conclude that the mapped changes in the occupational structure do not seem to be the drivers of inequality. Firstly, by studying perceptions of occupational status, as Ulfsdotter Eriksson did in Chapter 5, great stability is found over time, even though some tendencies of reduced and increased ascribed prestige were detected (Chapter 4). This result is important because occupational status is a sort of container that holds people's perceptions of differences in income and skill levels of occupations as well as their recognition and cultural worth. Secondly, by studying the inequality of earnings directly, Berglund found no changes over time (Chapter 11), which is interesting in itself as the wage-setting system in Sweden has changed during this period – from more nationally coordinated tariff-based wages to individual and differentiated wages with a stronger focus on local wage formation and performance-related pay (Chapter 2 and 10. cf. Baccaro and Howell 2017). Thus, the changes in the occupational structure that have taken place do not seem to have changed inequality patterns. In parallel, however, disposable income has moved strongly in the direction of increased inequality. This tendency is mainly an effect of political priorities of cutting taxes and reducing social transfers, and of increasing capital incomes as an effect of an inflated stock market during the period.

Implications for the Swedish Industrial Relations Regime

The above results indicate that the Swedish industrial relations regime seems to hold against galloping wage inequality, despite large regime changes in (neo)liberal directions, which should presumably move the development in the direction of larger inequalities (cf. Baccaro and Howell 2017). While not studying the causes of this resilience in the current volume, previous studies have pointed at a strong normative pressure to follow the decided mark by the partners in the industrial agreement (Ulfsdotter Eriksson *et al*. 2021). Moreover, in their analysis of attitudes towards trade unions, Prytz and Larsson showed further evidence of a reproduction of pro-union sentiments among Swedish workers (Chapter 10).

Thus, the Swedish industrial relations system, which was re-established in the second half of the 1990s (Chapters 2 and 10), seems to reproduce some of its former solidaristic traits. Therefore, it is reasonable to expect that the regime has had an important impact on the changes in the occupational structure during the period. Firstly, by depressing wage increases in generally high-paid occupations to the same level as other categories, despite the high demand of those categories, the employment rate in these occupations may have benefited; that is, potential wage increases have instead turned to employment growth. Secondly, as the lowest-paid segments have followed the overall wage increases, the growth of employment in those categories may have been hampered as those jobs often suffer from Baumol's cost disease (Chapter 3). Consequently, the industrial relations system in Sweden counteracts polarisation and reinforces upgrading. However, the side effect of wage equality may have been sticky unemployment rates as those have remained at a historically high level during the period. As discussed in Chapter 2, Swedish governments have tried to counter unemployment through different kinds of subsidies, reducing either wage costs for the employer, or the levels of service for the customer. Those measures seem to have had some effects, at least by affecting worked hours in the lowest-paid occupations. However, these governmental initiatives generally take place outside the bargaining system of the partners.

While a reformed negotiation model survived the breakdown in the 1980s, the membership figures have gone through huge changes over the period. LO, the traditionally working class-based union, has seen reduced membership figures over the whole period, significantly weakening its main power resource (Chapter 10; cf. Kjellberg 2022). The changing occupational structure is a structural factor that is related to this decline, with fewer people working in traditional blue-collar jobs and more in service-sector jobs such as at hotels and restaurants – jobs with generally a weaker social custom of unionisation (Prytz and Berglund 2023). However, the strongest impact on membership figures relates to institutional factors; that is, the rules regarding temporary employment that have been liberalised, but, especially, changes in the unemployment insurance system, that hit the so-called Ghent system. In parallel, similar declines have not been observed in several of the white-collar and professional unions, whose shares of all unionised people currently outnumber that of the blue-collar unions. This shift goes hand in hand with the increasing numbers working in well-paid occupations requiring

high skills and training, which may indicate an internal shift within the labour movement of which categories of workers have the strongest voice to formulate their needs and demands. It also indicates that the Swedish model of strong organisation of workers seems to survive, despite an upgrading of the occupational structure in the direction of better and more qualified jobs. However, there is also a real risk that parts of the labour force in low-paid and insecure jobs continue to move in the other direction of even less unionisation. From the LO perspective, the initiative to revitalise unionisation – even in contexts that are hard to organise, such as among platform workers, as described by Banasiak and Jesnes (Chapter 9) – seems essential.

Polarisation(s): Some conclusions

Returning to the starting point and the title of this volume, *Scrutinising Polarisation*, and by taking a joint theoretical approach, we close this book by discussing some main findings in relation to the concept of polarisaion. Inspired by Duclos and Taptué´s (2015) elaborations of the concept, we intend to set the different 'types' of polarisation into motion and, from a more qualitative or illustrative stance, discuss the overall findings in relation to *value*, *bi-* and *social polarisation*. The aim is to provide some condensed and nuanced, yet complex conclusions on how the changes in the Swedish labour market in the last decades can be described and explained.

Polarisation is increasingly being used by a variety of actors, such as journalists, researchers, politicians, and the general public, to describe a variety of issues in different contexts of society. It can refer to all kinds of problematic conditions in contemporary Western societies. Even though the term provides an immediate and perhaps intuitive meaning, it is vaguely defined as a concept (cf. DiMaggio *et al*. 1996; McCarty 2019). Like others, we had a taken-for-granted attitude when we started exploring polarisation in the Swedish labour market. In working on this book, we noted that we were using the term *polarisation* in a sweeping manner. Therefore, we set out to try to elaborate on the concept in relation to the different problems, topics and contexts studied in the various chapters. We were inspired by the different types of polarisation proposed by Duclos and Taptué (2015). Still, their elaborations mainly concerned polarisation in the context of quantitative economics research and expressed through a variety of formulas, whereas we needed more of a qualitative and sociological elaboration of the concept. For this purpose, we have used a selection of Duclos and Taptué's original types of polarisation very freely, to push ourselves into some sociological expansions.

Value polarisation

Value polarisation refers to the shape of any continuous distribution of an element/object/resource that people value. The shape of the distribution should be bimodal; that is, with two clear maxima or tops. We have both

focused on how change over time has been shaped (e.g., the percentage change of people employed in occupational quintiles), as well as the outcome of those processes (e.g., the relative distribution between occupations at a certain time point). That is, we have studied both polarisation as a process and polarity as a state (DiMaggio *et al*. 1996; McCarty 2019). In the different studies, we have identified and explored several value dimensions of relevance to the occupational structure with the potential to polarise. The dimensions that are at the forefront have been wages and incomes, occupational prestige, and educational requirements (that is, skills), while other dimensions are work environments/conditions and job security. Overall, we found few examples of full-fledged polarisation where the distribution has two modal points –when we look at either the direction of change or the relative distribution. Thus, when judging those distributions from a strictly theoretical point of view, polarisation is not the best way to describe either the direction of change or the distributions at certain time points. However, this reasoning does not exclude that important changes are taking place: changes that may indicate that some of the mechanisms discussed in the literature (e.g., RBTC) are at work also in the Swedish labour market. A caveat in this is that several of the studies presented in this book draw on data that extend up to 2015, and many major technological achievements that could have affected occupations may have occurred since then. Therefore, the small tendencies towards value polarisation in the labour market shown in some of the presented studies may have increased since 2015. For instance, platform companies started to be established in Sweden during this period (e.g., Foodora in 2015).

Bi-polarisation

Bi-polarisation focuses on how value dimensions are distributed among social categories or groups and whether the distance between them changes. Increased polarisation is shown when the gap between identified categories expands, whereas a reduction in the gap suggests a decrease in polarisation. Thus, the focus is on the width of the gap between social categories. Several of the studies in this book have identified different categories that are clustered in different parts of the value dimensions in focus.

Occupational gender segregation in Sweden is still strong, even if it is slowly decreasing (cf. Charles and Grusky 2005; Halldén 2014). Women are still the majority in occupations with the lowest wages and ascribed the lowest prestige, while men more often are found in high-prestige and high-wage ones. However, the gender gap is slowly closing, especially because women dominate higher education and men increase in lower-status and lower-paid occupations (cf. Ulfsdotter Eriksson 2022). Still, there are gender gaps in the work environment and women are more exposed to straining work than men. There is also a gender gap in approved compensation for sickness and injuries from work, but the gender gap within the same sectors is decreasing even if the gap between sectors is increasing (Chapter 7).

Natives and immigrants are other categories clustered in different parts of the occupational distribution. While Swedish-born people are generally the majority in different parts of the distribution, first-generation immigrants are mainly placed in the lowest-paid occupations, and increasingly so over time. However, studies in this volume have also shown that, over time, young people with foreign-born parents, particularly non-Europeans, are catching up with the Swedish majority (cf. Jonsson and Mood 2023). This seems to be an effect of educational institutions facilitating young people's ambition, which, over time, can further close occupational gaps between native and foreign-born.

Organisational strategies connected to digitalisation and flexibilisation may both counteract and drive bi-polarisation among different categories of employees. Digitalisation can benefit upskilling processes for employees with open-ended contracts, whereas temporary employees are allocated to less-qualified tasks and are less often offered training and development within the organisation (Håkansson and Isidorsson 2018). Moreover, functional flexibility may counteract bi-polarisation as task rotation decreases the skill gap between employees, especially among those with open-ended contracts. Numeral flexibility, on the other hand, seems to increase the skill and wage gap between permanent and temporary employed – and may therefore push bi-polarising effects.

Bi-polarisation may also be discussed in relation to the distribution of occupational prestige, where we see a compressed prestige range, in which the gap between the high- and the low-prestige occupations is decreasing. This tendency was already detected in the United States in the 1980s (Nakao and Treas 1994). A shrinking range suggests a desire to bridge the gap between how various occupations are esteemed in society. Occupational prestige measures build on people's perceptions of occupations, and even though there are some differences in how prestige is ascribed to occupations that can be referred to gender, age, social class and other social categories, the similarities in perceptions still trump differences. So, in terms of attitudes towards occupational prestige, we see no tendencies towards bi-polarisation.

With regard to attitudes to the role of trade unions, a certain polarity in opinions can be attributed to the type of trade union. The blue-collar collective gives greater support to the importance of the union negotiating collective terms, while those in white-collar unions are in favour of individual negotiations with the employer. This difference is stable over time, with no tendencies of increased bi-polarisation in this case either. However, this is a classic divide that can be traced back to issues of social class and power relations in the labour market, which brings us to issues of social polarisation.

Social polarisation

Social polarisation also concerns identifiable social categories but focuses on changes in sizes and power relations between them. In some respects, this is at the core of a sociological approach to polarisation as it clearly addresses

social matters dealt with within sociology and research on social inequality. Inequality concerns disparities in resources, such as economic and material resources, power, social status and life chances (Weber 1983; cf. Rothman 2002). Differences in resources also shape power relations. In this context, it is in line with how Walter Korpi (1985) discussed it. The power resource perspective focuses on means such as skills, education, money (wages, income) and status. While the studies conducted in this volume have only focused to a limited degree on power relations shaping social relations, we will take the opportunity to briefly discuss some possible implications of our findings.

First, the analyses in this volume point in the direction of affected gender relations in society, with more men entering female-dominated occupations, and vastly more women gaining employment in formerly male-dominated high-wage/high-prestige occupations. These changes have not impacted on the working environment as the female-dominated sectors still suffer from higher sickness absence and lower approved compensations. There is also a continuing social division between female- and male-dominated sectors (and occupations), in which the former is often also characterised by lower wages and fewer career opportunities. However, we also observe more women in leading positions in organisations, particularly in the public sector. The higher visibility of women in high-status positions in society, and also more widely achieved real organisational power, may ultimately affect gender relations more profoundly. The direction of change in those relations is not easily predicted, but we note simultaneous tendencies of both increasing equality and more fierce competition between the genders in several areas of contemporary societies.

Second, a burning question in contemporary Sweden relates to the question of the integration of immigrants into the labour market and the overall society. Studies in this book show first-generation immigrants increasingly placed in the lowest-paid occupations; in fact, the increase of workers with foreign backgrounds matches the number of Swedish decreased in those occupations (Berglund *et al*. forthcoming). This creates the risk of 'ethnifying' the labour market, with foreign-born increasingly placed in subordinated positions in the occupational hierarchy. Important for the potential to counteract a society with those features are opportunities for intra- or intergenerational upward mobility out from the low-paid sector. At least, in the analyses from this book (Chapter 6; cf. Jonsson and Mood 2023), there are signs of mainly intergenerational mobility upwards. However, those analyses show effects of facilitating institutional support that is not particularly contemporary – in the current study, the young were 20–24 years old in 2005. Recent developments in Sweden may make one fear that several of those factors, (e.g., functioning schools and segregated housing areas) have moved in the wrong direction.

Third, a central distinction for social polarisation concerns trade union membership. As membership analysis shows, academics and white-collar

service unions have increased, whereas blue-collar unions have decreased (Chapter 10; cf. Kjellberg 2022). As discussed previously, this change in union organisation is an effect of a changing occupational structure, with the strong growth of jobs with high educational requirements and high status. Those workers usually have greater individual power resources in the form of education, salary and status, and consequently believe in their ability to negotiate with the employer themselves. Paradoxically, however, it is those kinds of workers who tend to organise to a higher degree than blue-collar workers. On one hand, this emphasises the strong reproducing mechanisms in the so-called Swedish model, with a high unionisation rate and collective agreements as the main regulating mechanism in the labour market. On the other hand, this also signifies a change in power relations within the union movement, which may ultimately be less beneficial for the blue-collar collective. As Prytz and Larsson stressed, the main agreement between partners in 2020 was mainly concluded by the white-collar unions, with LO joining later. Moreover, the agreement traded decreased job security for increased training opportunities, a content that perhaps was more attractive for white-collar workers than for large parts of the LO members.

Finally, social polarisation may also be affected by increased numbers of non-standard employment in the labour market. Deviations from the typical open-ended contracts – that is various forms of non-standard and temporary employment – are increasing in Sweden (Berglund *et al*. 2022). As discussed in Chapter 8, differences in employment contracts within the organisation may spur social polarisation and affect power relations among employees. Platform jobs are an even more extreme form of non-standard employment (Chapter 9), decreasing workers' influence and job quality, and even blurring the employer–employee relationship, making the former avoid responsibilities. Overall, increasing non-standard employment in the labour market may severely decrease those workers' voices in the labour market as they also tend to be non-organised. Institutional changes in the direction of dualisation have strongly strengthened this tendency of an insider–outsider labour market, and negatively hit the LO unions' power resources (Chapters 2 and 10).

This book set out to explore changes and consequences of the transformation of the occupational structure in the Swedish labour market. The aim was to scrutinise polarisation using a variety of data from different contexts and on different labour market-relevant topics. As we have concluded in this final chapter, we have identified tendencies of both upgrading and polarisation. In our attempts to discuss different types of polarisation, we see the need to approach and further explore events in the labour market in a more nuanced way in order to understand the scope of changes for individuals, organisations and entire societies. The studies in this book have contributed to several such attempts, and we have also shown that the transformation of the labour market is not only about technology but is also strongly dependent on changes – and stability – relating to political and institutional matters.

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